

HURRICANE HARVEY AND THE DEVASTATION OF DISPOSSESSION

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Disaster science is a procedural field often construed as producing blanket policies that attempt to cover everyone, but the complexity of human lived experiences must have a space to exist within disaster science if its research and findings are to be effective. This thesis illustrates that disaster policies and publications often leave out the most vulnerable communities—those in greatest need of collective support. Through critically analyzing beautification through green space, discussing photovoice interviews, and by deconstructing public preparedness documents published by Harris County Office of Homeland Security and Emergency Management (HCOHSEM), it is clear that accumulation by dispossession filters down through not only property and money but also access to green spaces and a healthy life. By dispossessing low-income communities of their right to green spaces and life, those communities end up in places that are environmentally dangerous, leaving them at a disadvantage in the disaster preparedness and recovery process.

This thesis serves as a case study highlighting how HCOHSEM failed to provide low-income communities with assistance prior to, during, and after Hurricane Harvey. The lessons from these gaps in protective measures show that public policies need to be malleable to ensure residents of any community are covered. Though no two communities are alike, other cities and federal emergency entities can learn about what public policy measures require progressive changes to better serve the most vulnerable communities.

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CHAPTER 1

INTRODUCTION

On August 25, 2017, Hurricane Harvey made landfall in Aransas Pass, Texas as a category 4 hurricane. Over the next 24 hours, Hurricane Harvey moved northeast, up the Texas coast towards Greater Houston. As the storm moved across the inland coastal plain, Hurricane Harvey weakened to a tropical storm, and it stalled over Southeast Texas from August 26th to August 30th. Over those five days, Southeast Texas received up to 56 inches of rain, the highest amount of rainfall amount ever recorded in the United States (NWS Houston Galveston 2017). In addition to the extreme amount of rain from Hurricane Harvey, flooding in Houston was worsened by sprawling impermeable surfaces. The massive influx of water overwhelmed Houston's natural streams and human-made flood infrastructure, leading to deaths and property damage.

The damage inflicted by Hurricane Harvey's floodwaters was not limited to waterfront communities. Communities farther from the water, which had never experienced significant flooding, were flooded during Hurricane Harvey, taking some by surprise. In Houston, communities that are farther from streams tend to be less wealthy because streams are commodified to enhance property values. Therefore, low-income¹ communities that are not directly waterfront yet still suffered damage from Hurricane Harvey-related flooding are the focus of this study.

¹In this research "poor" and "low-income" are used interchangeably. The delineation between poor/low-income and middle-income to wealthy residents is an average familial income of "\$51,852 for a family of four with two children" (National Center for Children in Poverty 2019). Any community with an average income of \$51,852 or less is considered poor/low income. Any community with an average income above \$51,852 is considered middle-income to wealthy.

For low-income communities, the hurricane-related flooding recovery process does not stop at rebuilding or relocating. In fact, many low-income residents cannot afford the financial burden it takes to fully recover. What I am analyzing in this recovery process is how low-income communities are or are not protected by emergency management practices. As a whole, disaster science and emergency management fields work well for middle-income to wealthy residents, but these fields generally leave out those residents who require more financial assistance to prepare for and recover from a disaster. Even though natural disasters, such as hurricanes, cannot discriminate against particular groups of people, uneven social factors like race, income, spatial distribution, and community investment play significant parts in determining which communities will experience a disaster more intensely (Henkel et al. 2006:101-102; Levy 2012:426). In some cases, marginalizing social factors can prolong the disaster by slowing recovery time. To ensure all residents have access to recovering, policies must reflect the populations they serve.

The Background of This Study

The Hurricane Harvey recovery effort is on-going, even almost four years after the disaster, but understanding how low-income and other marginalized communities experience harmful effects from disasters is well-documented. In many places, low-income communities live in areas that are at higher risk for natural or anthropogenic disaster (Pulido 2017:529). These areas generally have lower quality of life in terms of residents' health, a higher coverage of impermeable infrastructure, and a lack of green space and green infrastructure (Garcia-Cuerva et al. 2018:649). These spaces reserved for low-income residents are high-risk environments for damaging impacts of natural

disasters, and sinks' existence creates a dangerous and false mental landscape of certain groups of people naturally belonging to certain places (Finney 2014: Preface XV): upstanding citizens *naturally* deserve oak-lined shady streets, while the less-than-savory residents *naturally* belong in run-down, police-ridden streets, where bars find homes on windows. Creating mental landscapes of belonging through exclusion of who *should* exist in a certain space is a product of environmental racism, with the end effect of leaving predominantly Black/Indigenous/People of Color (BIPOC) communities out of disaster policies that could save lives and belongings.

The Study Area

The study area for this research is Greater Houston in Southeast Texas. The importance of this region in disaster studies is the high-risk nature of disaster in the region as it lies along the Gulf Coast of the United States. The low elevation of the region and coastal situation of Greater Houston means it is near the mouths of several major streams that empty into the Galveston and Trinity Bays. In the way of natural disasters, the Greater Houston area is at risk of hurricanes and tropical storms, tornadic activity, intense heat and humidity, flooding, and rare winter events that bring life-threatening frigid temperatures. In addition, Greater Houston is at a high risk of anthropogenic disasters such as geological subsidence due to groundwater usage and industrial extraction (Campbell et al. 2018:4), erosion from removal of coastal ecosystems for urban development (Watson et al. 2019; Prennings et al. 2021) and pollution from extractive industries (Collette & Dempsey 2016; Friedrich 2017; Trevizo 2019; Trovall 2018).

In Chapter 2, I specifically discuss the beautification and gentrification of

Houston's East End. This region is located just east of downtown Houston, extending from the north-eastern edge of downtown at the confluence of the White Oak and Buffalo Bayous to the Port of Houston Turning Basin (BBP 2019:5-6). This area is historically low-income and working-class, and made up of Black and Latinx communities (BBP 2019:3).

In Chapter 3, I interviewed two Houstonian residents: one from Pecan Park, located east of downtown Houston, and one from the Greater Third Ward, located immediately south of downtown Houston. Both of these communities are low-income and are inner-city with high risks of pollution and flooding, respectively (see interviews in Chapter 3).

While no two locations are exactly the same, Greater Houston's dense population, massive urban sprawl, history of disasters, and future risk of disasters make the region a prime region for disaster studies. With the continuation of the climate crisis, the cycle of natural disasters, and the inevitable nature of anthropogenic disasters from extractive industries, vulnerable Houstonian communities are on the front lines of those who will experience disasters with longer recovery times.

The Conceptual Framework

In this thesis, I investigate disparate impacts of Hurricane Harvey across waterfront and non-waterfront communities in Houston within an environmental justice (EJ) framework (see below). Protecting low-income communities in the same way as their more affluent neighbors relies on politics and the government bodies in power. Low-income spaces are often ignored in community relations, but EJ encompasses a broader set of social impacts. The term "environmental justice" has its origins in

discussion of “environmental racism,” a term coined by the Reverend Benjamin Chavis (Cutter 1995:112). A conceptual limitation of environmental racism is that though race plays a major role in marginalization, it is not the only factor that leads communities into the abyss of societies; therefore, the word “racism” progressed into “justice” to create a new term that engages those marginalized by race, gender, age, and income (Cutter 1995:113). EJ takes meaning from understanding marginalizing social factors that situate people in places (Cutter 1995:113). A key factor from Cutter’s (1995:112) original framing of EJ is “procedural equity” within the environment, which refers to how environmental policies are implemented in “non-discriminatory ways.” By understanding how procedural equity works for communities, I analyze the emergency management responses to Hurricane Harvey in this thesis. In addition, I review the voices of low-income communities (or lack thereof) through deconstruction of HCOHSEM public preparedness literature to determine if emergency management response to Hurricane Harvey is equitable.

I then focus upon the critique of emergency management literature and its rhetorical conventions. American disaster policies and publications use language that implies all residents are entitled to response from the government in preparation for and when recovering from disasters. Local governments, however, either imply or state that each resident is responsible for their own safety and recovery regarding materials and processes such as first aid kits or even construction costs of rebuilding. The problem with such uniform policies (stated or implied) is inattention to forces of social inequity that cause environmental injustice because populations comprise wealthy, middle-income, and low-income earners; different races; different needs; and other drivers of

disparity. The result is that members of poor communities are left unprotected when disasters hit, in contrast to their comparatively affluent neighbors. In order to frame the research presented in this thesis, it is helpful to understand limitations of emergency management in the United States that stem from the structure of institutions as well as underlying environmental ethics, both of which increase vulnerability of communities to natural disasters and the impacts of weaknesses in disaster response. The emergency response to COVID-19 in addition to the much-studied disaster response to Hurricane Katrina describe key challenges in environmental management and disaster response, including accumulation by dispossession through the vehicle of disaster capitalism, which I discuss in detail in the remainder of this section.

The top-down approach in American emergency management described above is ineffective for marginalized communities. A recent example of this effect is the COVID-19 pandemic, in which all U.S. residents are left to fend for themselves, while hospitals are over-run with the contagiously ill, and white nationalists scream into essential workers' faces about their "right" to risk others' lives by not wearing a mask. Meanwhile, emergency management and other governmental agencies were silent, either because they are helpless, or they subscribe to letting the virus take its course—the latter choice suggested directly from an emergency manager I know—which causes communities to fall apart because of individualistic ideologies. The populations suffering most from COVID-19, are marginalized communities, most notably BIPOC communities (Mental Health America n.d.).

As vulnerable low-income communities are more susceptible to the effects of disasters, there must be a different way to protect those who need it most. Geographer

Doreen Massey (1991:269) observed that national causal policy definitions imply a hard-stance blanket that seems to homogenize an entire population. Massey(1991:268) stressed that diversity of localities cannot be erased from the conversation as each local has different responses based on “traditions and resources.” While Massey does not glorify the local scale, the implications of her work call for structures that attempt to honor the diversity of localities while unifying them through more general malleable guideline. For disaster studies, this implication understands that national policies are useful in allocating help and resources at a broader scale; however, local scale resources, traditions, and understandings must also be taken into account, and the two scales must be able to work in tandem. Working at multiple scales in tandem can be challenging, but as mentioned above, the COVID-19 pandemic provides a perfect example of what happens if local and larger governments cannot work together. In the months of May through July 2020, the officials in three of Texas’s largest counties (Bexar: San Antonio, Texas; Harris: Houston, Texas; and Dallas: Dallas, Texas) attempted to enact protective measures to slow the infection rate of COVID-19 in their jurisdictions. As helpful as the protective measures were, the broader state retaliated, squashing the measures, touting individual so-called freedoms of Texans. Because of this discrepancy, Texas residents were thrown further into chaos and the state became one of the top hotspots for COVID-19-spread in the United States. Had protective policies in Bexar, Harris, and Dallas counties coalesced with Texas policies (with the understanding that local officials are more in tune with their populations), all Texans could have been better protected and more adequately provisioned.

A second key issue in contemporary American emergency management

concerns the Western duality between humans and nature in the context of neoliberalism, which is of key importance when discussing the disaster response to Hurricane Katrina (see below). It is a significant challenge for environmental and disaster management professionals to invest in locally attuned policy initiatives and practices under this economic model, which is purely profit driven within capitalism. Underlying neoliberalism is a problematic environmental ethic. Contemporary Western societies distinguish nature as a place that exists in an abstract space beyond backyard fences (Rozzi 2012:36; Watts 2013:24). Citizens may visit this strange plane for recreation and for short intervals, but the natural dimension is not a place to live full-time or within which to fully exist. In fact, as pointed out by Vanessa Watts (2013:24), many contemporary westerners are raised with idea that “communication with nature held disastrous effects,” as was the case with Adam and Eve. Rozzi (2012) and Watts (2013) believe that countering this mentality is an effective way to ensure EJ. By eradicating the notion that humans are separate from nature, Rozzi (2012:50) and Watts (2013:27) posit that humans can regain an understanding of how we fit *within* nature, how we affect the environment, and how the environment affects us. Integrating people within nature requires a communal understanding of the world that would promote stewardship rather than ownership of the environment (Rozzi 2012:50; Watts 2013:25,27). Such an ethic that erodes the nature-human dichotomy is antithetical to neoliberal, corporation-centered capitalism, which has been the basis of society, economics, and politics in the United States since the 1980s.

In 2007, Naomi Klein wrote *The Shock Doctrine: The Rise of Disaster Capitalism*, which is a comprehensive understanding of what the Shock Doctrine is and how it

affects the United States and other parts of the world. The Shock Doctrine and the disaster capitalism it supports implement neoliberal policy after traumatic events within communities. In the process, a population experiences a traumatic event, such as war or a hurricane. Next, neoliberal policy-makers enter the scene when the population is in shock and in need of aid. The policy-makers implement detrimental policy that focuses on capital accumulation while disenfranchising the most vulnerable—disaster capitalism. Shock Doctrine policy deploys rhetoric that portrays a beneficial, healing aid-based fantasy. In reality, these policies steal from residents and privatize resources (Adams et al. 2009:630) wherein federal funding went into contracting private companies, leading to further oppression of marginalized communities.

Using the example of charter schools in New Orleans, Louisiana, Klein shows the real-world effect of disaster capitalism, transforming the concept into something real and tangible. The introduction of book begins with describing New Orleans immediately after Hurricane Katrina. The city had been decimated by floodwaters and wind, and neoliberal capitalists saw an opportunity overhaul the city's education system. Instead of improving government-funded public schools that, if well-supported, would educate students equally, leading to betterment of communities, the New Orleans school district closed many schools to make way for investors via charter schools. Such schools are publicly funded, but money allocated to a charter school goes directly to private investors (Klein 2007). Investors and neoliberal sympathizers in the New Orleans school district took advantage of post-Katrina conditions to set up smaller schools with smaller class sizes—which are indeed more beneficial for students—but instead of ensuring these small class sizes educated all New Orleanian students equally, the

private nature of the charter schools led to inequitable access to high-quality education for wealthier residents (Klein 2007:5). As charter schools are private, they do not have to follow federal and state public school requirements and policies (Klein 2007:5). This means charter schools can short-change students' educational experience in marginalized communities while still collecting money from the low-income community. According to the New York Times, cited by Klein (2007:5), the indoctrination of neoliberalism in New Orleanian schools created what is can only be described as the head "laboratory" of charter school education.

Through understanding the history of neoliberalism and the initiation of the Shock Doctrine in contexts such as post-Katrina New Orleans, a poorly known rhetoric of American emergency management is elucidated (also shown in Adams et al. 2009:631). It can be seen how the lived experiences of people in communities are negatively impacted by policies that serve corporate interests, such as charter schools investors. Gaps in government protection of low-income communities become evident and related negative impacts are intensified during disasters. Who receives or does not receive aid paints a clear image of who the government is willing to protect (Boyd and Vardy 2019). To the east of New Orleans, as a second example, the City of Biloxi, Mississippi was also devastated. In the recovery effort, the City viewed Hurricane Katrina's levelling of the Mississippi coast as an "opportunity" (Driscoll-Derickson 2014:890) which sounds like a happy turn of events and a chance to heal. What the rhetoric hides, however, is an agenda to view the disaster as a "blank slate" and an opportunity for the local government to rid the city of who they did not want in their community: low-income and historically Black communities that lived in high-risk flood zones (Driscoll-Derickson

2014:889; Adams et al. 2009:634). By removing those viewed as devalued (Pulido 2017:529), the City literally intended to whitewash the community to bring in high-end investors, business, and residents. This is a textbook example of “accumulation by dispossession” as framed by David Harvey (2004:73-76). The local government dispossessed vulnerable groups of property, money, and community support through legal means in order to accumulate capital. In the cases of post-Katrina New Orleans and Biloxi, accumulation by dispossession was carried out via disaster capitalism.

In this research, I further the theory of accumulation by dispossession by showing it is not limited to property and production. The right to green spaces and right to a healthy life can also be dispossessed for capital accumulation. Wealthy entities accumulate green spaces and access to a healthier life through dispossession from marginalized communities and resale to new residents who can afford lush landscapes, and clean air and water. In David Harvey’s (2004:75) concept, accumulation by dispossession is the process of theft by elite entities of marginalized-owned property in order to create sources of capital-genesis. The process by which emergency management and local governments do not protect low-income communities creates a condition in which low-income communities are at risk of being dispossessed and physically removed from places they call home in the wake of a disaster. By using the theory of accumulation by dispossession, I ask the question of this research: how does accumulation by dispossession of green space and access to a healthier life affect low-income residents’ ability to recover after natural disasters?

In Houston, which is the focus of this study, zoning laws are non-existent. This creates opportunity for placing industrial complexes on inexpensive land in order to

create more profit. The problem with this physical situation is who lives on this designated inexpensive land: low-income and other marginalized communities.

The pollution let off by industrial plants has been a problem for low-income communities long before Hurricane Harvey (Trovall 2018). In toxicology studies after Hurricane Harvey, it was discovered that the floodwaters were extremely toxic due to chemical influences from nearby industrial complexes (Friedrich 2017). In many of the low-income neighborhoods, residents experienced flooding but not total loss; therefore residents did not move, and in some cases, they could not rebuild, so residents had to live with the water damage (Boyer & Vardy 2019). After testing the dry wall and soil in Harrisburg/Manchester, toxic compounds like benzene, dioxin, and other carcinogenic compounds were found still actively residing in living spaces (Friedrich 2017). Because the residents have no options to move away (Boyer & Vardy 2019), residents must live with being exposed to these toxins not only in the air they breathe outside regularly, but in their own homes where they sleep (Friedrich 2017).

Benzene, dioxin, and other carcinogens can cause long-term, high cancer risks, which now plague the low-income communities that were flooded with chemically toxic water. The full extent of this risk, however, will not be known for several years after exposure. In the short-term, benzene, dioxin, and other carcinogens cause dizziness, headaches, tremors, and respiratory issues (Friedrich 2017). Note here that flood water is inherently toxic and dangerous. On a good day, the walls of water are not just mixed-up mud and water; they are solutions of mud and water in addition to dead bodies, sewage, rusty sharp objects, and potentially disaster-agitated animals like Alligator Gar

and alligators (both of which, to paraphrase *Dinosaur* (2000), come with sharp teeth and a bad attitude).

The more wealthy affluent residents experienced Hurricane Harvey as well, and in some cases, these more wealthy communities received more physical damage, which is traumatizing and heart-wrenching. The difference, however, is the disproportionate rate at which middle-income and wealthy Houstonians can recover in relation to their low-income neighbors. In the western area of the Houston metro area lie the Addicks and Barker Reservoirs, flood infrastructure built by the Corps of Engineers well over 50 years ago. During Hurricane Harvey, the Corps of Engineers evacuated several neighborhoods that were allowed to be developed within the boundary of the reservoir. The Corps of Engineers chose to purposefully allow those in-reservoir neighborhoods to flood in order to protect the larger number of homes downstream (Wallace et al. 2018).

Aside from being an extreme situation, as neighborhoods are not generally purposefully destroyed to mitigate disaster, this evacuation received a lot of attention due to the vocal power of the residents. Home values of the in-reservoir homes were on average worth around \$300,000 (Brust 2017). In contrast, in the toxin-ridden community of Harrisburg/Manchester that received less media attention, homes were valued to be around \$60,000 right before Hurricane Harvey in 2017 (Realtor.com).

The differential monetary value of homes in communities has significant implications for disaster planning and recovery. The in-reservoir homeowners had several options to pursue immediately following the evacuation: class-action lawsuits, land buy-back programs from the government, and the ability to move to a safer

location. In Harrisburg/Manchester, many residents had no choice but to stay. Because many low-income homes have never flooded, the rising waters caught many by surprise and without insurance, if the residents could even afford it. With this shock fully in swing, fly-by-night contractors came to rescue these low-income residents, promising affordable rebuilding and repair (Boyer & Vardy 2019). In some cases, residents paid for rebuilding services and never saw a contractor walk through their door (Boyer & Vardy 2019).

The ability or inability for a community to find resources and operate bureaucratic barriers comes down to social capital. Social capital, conceptualized by Pierre Bourdieu 1986:248-252), comprises common resources (like preparedness supplies, bureaucratic know-how, language fluency, money, power, etc.) and the social interactions that build relationships within a community. In the context of marginalization, marginalized communities have less social capital, so their ability to assemble together to enact change and recovery is much harder because they have less sway with the government and powerful people due to things like race, income, age, and spoken language. Differential access to social capital is, thus, one driver of accumulation by dispossession. More financially well-to-do and white communities have much greater social capital in the United States, so they can not only better afford recovery, but these more affluent, white communities can better mobilize to create change for their communities in relation to recovery. It is true there are non-white members in mostly white communities. Those who are generally accepted by white groups are non-white people who have learned how to navigate that space, so they are more readily accepted by the mostly white community and the government (Boyer & Vardy 2019).

How low-income populations are prepared for a disaster is especially important to the recovery process: what kinds of preparedness literature do residents have access to? What languages are available for preparedness literature? What can residents afford? By bringing together the literature behind disaster and marginalized communities, and the current structure of Houston, there can be a fuller understanding of how low-income Houstonians are served by local governments prior to, during, and after disaster.

The Methodology

In order to understand how the complex webs of disaster recovery intertwine in the context of Hurricane Harvey, I critically analyzed rhetoric surrounding beautification of spaces and the negative effects of beautification on low-income and BIPOC communities: gentrification. I then used the method of photovoice to interview residents in low-income areas of Houston, Texas. The photovoice method is historically used as a feminist method of interviewing people within studied communities (Schumann et al. 2018:273). This method recenters academic studies away from the academic investigator to focus on community members (Schumann et al. 2018:273). Through photovoice, community members can share photos of meaningful people, places, and things that relate to the study, and the members share their stories of the provided photos. In the interviews, data is processed as community members share their stories, and findings can be synthesized directly within the community as residents become activists in their own communities through uncovering the intricacies of their lived experiences (Schumann et al. 2018:273-274).

In conjunction with the literature surrounding beautification and gentrification

along with the findings from the photovoice interviews, I critically deconstruct the disaster preparation rhetoric given by HCOHSEM, and I use their itemized disaster kit lists to show the hypothetical cost of disaster preparation in the Houston area. When put all together, the literature, interviews, and HCOHSEM disaster rhetoric paints a picture of how low-income communities in Houston experienced Hurricane Harvey and what potential challenges lie ahead in future disasters.

Summary and Conclusion

With this introduction in mind, in Chapter 2, I provide in-depth context for the physical and social nuances that set the stage for Hurricane Harvey's disastrous effects on Houston. This entails understanding beautification and greenspace as not only successful flood infrastructure but as gentrification methods that negatively affect low-income and BIPOC communities. I then trace a line of history of dispossession of greenspace in Texas through the cities of Houston, Grapevine, and San Antonio.

In Chapter 3 I focus specifically on Houstonian voices and HCOHSEM's public disaster literature, which includes disaster preparation kits. I discuss two photovoice interviews to provide first-hand accounts of surviving Hurricane Harvey in low-income neighborhoods. I then provide two itemized tables which provide the general costs to prepare for disaster based on HCOHSEM's recommendations. The tables are then analyzed against the photovoice interviews to show that disaster preparedness in the United States is not created with the vulnerable in mind and can be unattainable for members of low-income communities.

Finally, in Chapter 4, I discuss the implications of this study with the following concepts intertwined:

- Accumulation by dispossession
- Beautification, greenspace, and gentrification
- Photovoice interviews
- HCOHSEM's cost to prepare

I then provide the limitations of this study and what should be included in future studies to ensure more equitable and more inclusive disaster preparation and recovery infrastructure.

CHAPTER 2

THE BEAUTIFICATION OF BUFFALO BAYOU AS ACCUMULATION BY DISPOSSESSION

As the global leader of energy, Houston's economy is tied to chemical and oil industries and related commercial sectors. Buffalo Bayou is the main waterway that runs through Houston, and in its catapult into modernity, the city has altered the stream many times for purposes of flood control and as a beautification project to crown the city's skyline. Today those efforts center on an urban revitalization effort led by an organization called the Buffalo Bayou Project. This group successfully manifested Buffalo Bayou's West End as a manufactured "natural" jungle up against the concrete jungle to create money-making opportunities for Houston, which have been disguised as restoration. With the West End of Buffalo Bayou now finished, development is now focused on expanding downstream into the East End—an area of Houston comprising lower income communities that begins at the east side of Downtown Houston and ends at the Port of Houston Turning Basin. The expansion of natural park areas along the bayou spells disaster for the communities of the East End. In terms of this thesis research, the Buffalo Bayou Project is a vehicle for accumulation by dispossession because green space is being constructed and commodified to produce attractive park-like spaces in Houston at the growing expense of East End residents. In this chapter, I discuss commodification of nature, the surrounding rhetoric, and the effect commodification of nature has on human lives. This chapter is organized into the following sections:

The History of the Buffalo Bayou

Buffalo Bayou is the heart of Houston; the sprawling metropolis was founded upon this bayou in 1836 (Urban Land Institute 2018), and most of modern-day downtown sits on its southern banks. Through the city's early years, Houston residents learned the area to be prone to substantial flooding. As the Houston grew in the early industrial era, plans were made to create parks out of the many surrounding waterways (Urban Land Institute 2018). The idea to begin commodifying nature in Houston for the first time came from architect Arthur Comey, who believed that any waterway around Houston should be "parked" if the waterway was not used commercially; however, in 1935, Downtown Houston was severely flooded; correspondingly, the bayou was straightened and channelized in concrete to avoid future disaster (Urban Land Institute 2018).

As Houston expanded around Buffalo Bayou, neighborhoods grew on its banks, enjoying the shade trees while simultaneously abhorring the sight of a muddy little "ditch" that had no amenities and was, in their eyes, valueless beyond its function in flood control (Urban Land Institute 2018). In the 1980s, the Buffalo Bayou Project (BBP) was formed to pursue development and beautification. BBP's goal was to turn 10 miles of Buffalo Bayou, from Shephard Drive east to the Turning Basin, into a riparian park for urban Houstonians (Urban Land Institute 2018).

The completed section of Buffalo Bayou Park, which begins just west of downtown, is beautiful, and logistically, its construction is smart. The park consists of multiple levels with spaces for recreation. The multi-level system along with submergible art and recreational structures allows the park to be flooded without significant damage,

that way, after flooding, there is not a rebuild, but simply a cleanup (Urban Land Institute 2018). This has worked well given the frequent flooding of Buffalo Bayou, and only once was the park completely submerged—during Hurricane Harvey—after which simple repairs such as the sidewalk lamps lightbulb replacements were conducted.

The 58-million-dollar West End project was led by Anne Olson, the head of BBP. In her statement about the project, Olson said the project was “capital driven, not an environmental or membership group” (Urban Land Institute 2018)—which for purposes of this research demarcates a clear neoliberal context for the project. Olson’s statement quote tends to be overlooked, but the purpose of the BBP can be described as: gentrification of inner-city, bayou-adjacent poor communities in order to increase revenue for the City of Houston. Establishing urban parks has many benefits, such as increasing the quality of environment for residents, the production of beautiful recreational spaces, and the construction of flood control infrastructure. However, commodifying nature to increase capital without concern for the residents of the impacted area is problematic and should be critiqued, particularly related to low-income communities who have limited knowledge of and/or power to resist the BBP. The next section of this chapter describes a theoretical framework for critiquing the BBP.

Ghettos and Beautification

In his synthesis of economics, Marx (1867) explains the history of capitalism through its violent origin in primitive accumulation, which is how elite society members steal wealth and property from peasants and working-class people through means of violence and blackmail. This theft relies on commandeering the mode of production in order to subject working-class members to long hours of work for minimal pay.

In the 1980s, capitalism took on a new direction under the hands of Margaret Thatcher, Prime Minister of the U.K., and Ronald Reagan, President of the United States. This new direction, neoliberalism, took primitive accumulation and turned it into state-sanctioned dispossession in order to create revenue for corporations. Human geographer, David Harvey (2008:39) refers to this neoliberal process as *accumulation by dispossession*, wherein “the developmental drive... seeks to colonize space for the affluent.” In contemporary society, accumulation by dispossession takes place through predatory lending practices, bank bailouts, real estate rentals, and other socio-economic arenas. Neoliberalism is consuming nations, economies, and people in Western society, most notably within the United States and western Europe. In addition, non-Western countries that adopt neoliberal policies and norms strip human rights and social benefits from people and bolster subsidies and relief to corporations. Correspondingly, states, corporations, and wealthy persons accumulate wealth through sacrificing the interests and resources of constituent citizenries. Such accumulation by dispossession moves away from the outright violence of Marx’s primitive accumulation and legally dispossesses working-class money and property into state and corporate interests. This creates inequalities for lower-class people who work labor-intensive, minimum-wage jobs to make ends meet.

In the neoliberal society and city described above, beautiful spaces are reserved for people who have a higher bodily and social value—generally affluent and white persons in Western societies. In this context, the environment becomes weaponized and by becoming separated into clean, green spaces for the affluent and mostly white. Meanwhile, members of low-income communities—mostly consisting of people of

color—are relegated to the industrially deteriorated and impacted environments.

According to Laura Pulido (2017:529), such places can be described as environmental “sinks,” systematically designated areas that have historical significance harkening back to settlement and primitive accumulation. When a group settles a place, the affluent/elite choose the best places for themselves; the next best space goes to members of the middle class—however that manifests itself—and the least desirable space (e.g., perhaps it floods, is prone to fire, has poor soil, etc.) goes to the poor, disempowered, and marginalized members of society. Over time, environmental risk and deterioration compound within areas that are historically low-income community spaces. In Houston, land with the most greenspace is reserved for communities, such as River Oaks and the Woodlands, while communities like Harrisburgs/Manchester and Pecan Park are left with cheap land that is covered in concrete and is desirable to industrial complexes that pollute water, air, soil, and body.

Eventually, capital outgrows the bounds of the original and decidedly beautiful land and expands into the crumbling infrastructure of old, neglected buildings. The accumulation of these spaces is reasoned to be for the greater good in that deteriorating infrastructure is the target, but in practice such accumulation is exceptionally beneficial for affluent developers who displace poor people from these areas, beautify the area, and reap the profits of resale. Jess D. Linz (2017), for instance, documented the beautification and gentrification of the Over-the-Rhine (OTR) neighborhoods in Cincinnati, Ohio, exposing the negative impacts gentrification has on working-class and low-income neighborhoods. On the surface, community development projects like those in the OTR neighborhoods plan for revitalization and beautification,

but Linz shows that the result is exclusion of low-income residents that takes place through the social discourse of aesthetics. Linz (2017:134) argues that through a process of creating microcosms of a certain aesthetic, like hipster bars and fancy pizza shops, the more trendy and upscale newcomers create small catalysts for a larger battle of social genres that threatens to displace residents who cannot keep up with a rising property-tax burden that is an outgrowth of beautification. Development catalysts take forms of higher prices for once-affordable burgers and other community staples that have existed for decades or even new shops that exercise new-found power to evict guests based on their appearance (Linz 2017:135-136). In a new OTR taco shop, for example, a social worker invited a houseless OTR resident for a meeting and a taco dish. Based on the houseless OTR resident's appearance, the restaurant manager asked the resident to leave. When the social worker protested, the restaurant manager told the social worker that the shop keeps "unsavory" characters away to preserve the environment for customers (Linz 2017:135).

While Linz records small interactions that build into a punctuated event, several questions remain: who are savory patrons? Are they BIPOC members of the community? Are they from the original working-class/low-income community of the old OTR neighborhoods? While these questions are left for another time, Linz poses the chance for integrating social genres—the old and the new—by pointing toward these small interactions not only as examples of marginalization but as pathways for inclusion. The outcome of inclusion, however, rarely emerges. While the new OTR taco shop received backlash on social media, the narrative is clear: trendy newcomers set the stage for future social boundaries if there is government-sanctioned support to continue

gentrification (Linz 2017:135). One can anticipate and indeed observe similar sets of small interactions as well as punctuated events occurring within East End communities in Houston. Indeed, such circumstances that relate to neoliberal forms of development accelerate when communities face crises that require disaster response. Another key example can be found in post-Hurricane Katrina disaster response in New Orleans, Louisiana and Biloxi, Mississippi.

As introduced in Chapter 1, in her 2007 book *Disaster Capitalism: The Rise of the Shock Doctrine*, Naomi Klein revisits the post-9/11 neoliberal indoctrination of policy through using a group of people in shock. In this state of shock, Klein notes that people are disoriented, which accentuates socio-economic vulnerability of low-income communities and thereby emboldens agents of neoliberal development to swoop in without a fight to create policies that accumulate capital by dispossession. The process of employing this shock doctrine can be termed disaster capitalism.

The impact of disaster capitalism upon marginalized people through beautification and urban renewal in the context of disaster recovery in Mississippi is explored by Kate Driscoll-Derickson's (2014) in her investigation of the rhetoric of post-Katrina recovery and disaster response in Biloxi during its rebuilding process. Hurricane Katrina decimated the coasts of Louisiana, Mississippi, and Alabama. Along with the City of New Orleans, Biloxi was heavily damaged, with a majority of the damage occurring in Black neighborhoods (Driscoll-Derickson 2014:839,898-899). Recalling Marx's primitive accumulation as a historical driving force in marginalization, the Black communities in Biloxi settled in backwater bayous and bayou-adjacent land after the Civil War. In a state where Confederate monuments are prevalent, as is the case in

every U.S. state along the Gulf of Mexico, it is impossible to forget the social tensions, most notably racism, that pervade people's lives in this region, including within emergency management.

As stated above, much of Hurricane Katrina's worst damage in Biloxi was in Black neighborhoods (Driscoll-Derickson 2014:839, 898-899). The city of Biloxi employed disaster capitalism as described above in discussion of the shock doctrine to frame *how* the city would recover. Most notably, and similarly to the OTR neighborhoods in Cincinnati, rebuilding Biloxi was posed as urban renewal, a rebirth, and a way to improve the city beyond what it was prior to Katrina (Driscoll-Derickson 2014:890-891). The rhetoric adopted by city leaders propelled the absorption of heavily damaged portions of the city that had previously suffered from poverty. By accumulating this land, city leaders laid plans to build casinos and to rezone property for commercial, upscale residential, and tourism purposes. Rezoning of once impoverished land in this manner would attract wealthy visitors and high-dollar investors, which would improve the ability for the city to accumulate capital. Unmentioned in the rebuilding plan, however, were the negative impacts upon Black residents of the destroyed neighborhoods. The City of Biloxi had no plans to relocate the newly houseless populations; the city would simply take resident land and expect the displaced resident to find new lodgings on their own. Is a similar process playing out with the BBP in Houston?

In the remaining sections of this chapter, I assess disaster response to Hurricane Harvey by the City of Houston; in particular, I answer: did the City of Houston accumulate green areas and promote neoliberal forms of development through the use

of revivalist language in a manner that constitutes disaster capitalism? I demonstrate how the City of Houston allowed and continues to allow the BBP to commodify spaces in the low-income communities of East End. As with the rebuilding Biloxi, the BBP emphasizes rhetoric of renewal but omits the negative impacts upon residents of impoverished areas.

In the following sections of this chapter, I discuss the BBP's plans for the extension of Buffalo Bayou Park east of downtown. The east side of the Buffalo Bayou Park, called the East End Project, is an important part of the gentrification process employed by the BBP. Most members of the low-income communities in the East End are people of color, and in some neighborhoods, Spanish is the dominant language (Friedrich 2017). Given the vulnerable social positions of the current East End residents as low-income and BIPOC communities, I discuss the impact gentrification has on low-income populations.

Deconstructing Gentrification

For most people, the term "gentrification" conjures dilapidated spaces that are mystically transformed into safe, walkable greenspaces and so-called "nice" neighborhoods. The process of gentrification evokes uplifting a neighborhood out of poverty, but what happens to the original residents of these places? The concept of gentrification and illusion of progress it represents must be deconstructed before focusing upon the East End of Buffalo Bayou.

The dark side of gentrification, particularly in the context of disaster capitalism, is insidious, discriminatory, and has significant negative impacts on the lives of people who have no voice in neoliberal societies. To begin the process of gentrifying a space, a

capitalist or capitalist entity must see potential for capital accumulation. Once the potential is identified by municipalities or developers, investors dive at the chance of purchasing land at cheap prices. A caveat is that the low land price municipalities and developers offer investors is often what enticed people who are near, at, or below the poverty line due to more affordable costs of living. Once investors convince a few families to sell their property, there is a domino effect of land sales in communities in which residents try to recover income from their properties.

On the investment side of disaster capitalism and gentrification, high-end properties create a substantial tax rate that members of poor communities cannot afford. Three hours west of Houston, for instance, San Antonio's East Side has one of the fastest gentrifying neighborhoods in the United States, zip code 78202 (Caltabiano 2019). San Antonio's East Side has been home to many poor BIPOC residents for decades. It is physically separated from the rest of the city by pedestrian bridges and highways and historically has been neglected compared to other parts of the city.

In 2019, News 4 WOAI, a local San Antonio station, interviewed a resident of the 78202 neighborhood (Caltabiano 2019). The decades-long resident, Carlos Cisneros, was happy to see the crime rate decrease as the area became gentrified, but he also acknowledged the higher taxes that pushed neighbors out of the community (Caltabiano 2019). Concerning those neighbors, Cisneros said, "It's kinda scary cause you think people are just going to get shoved out." Cisneros never mentions where his former neighbors moved (Caltabiano 2019); the former residents became the faceless poor who disappeared, taking their "problems" to other places. This feeling is not isolated to Cisneros and the 78202 neighborhood; in fact, it pervades many poor and BIPOC

communities in the United States. This example from San Antonio highlights the dark side of gentrification that is visible once the veil of neoliberal development is lifted. The process of gentrification is having similar impacts on communities in East End.

East End: Then and Now

Through primitive accumulation in the early 1800s, white settlers continued to take land from Indigenous peoples, and as the history of Houston progressed through the Confederacy, the Civil War, reconstruction, and into modernity, poor and BIPOC populations were pushed into territories like the East End, which was prone to flooding and, therefore, government neglect. In the modern neoliberal era, Houston's opportunities for capital accumulation took the form of fossil fuel and chemical industries, which purchased land in the East End.

The East End of Buffalo Bayou is historically a working-class part of Houston, and most of its communities are low income (Fig. 1). An exception is a small, recently gentrified neighborhood directly adjacent to downtown. Because prominent Houstonians have not hailed from East End, the area has been neglected by the city. Over time, the Houston Ship Channel was built, and chemical and industrial plants became concentrated in this area because of access to cheap land and labor. In fact, the city of Houston facilitated industries to locate in this area by easing zoning restrictions such that industrial facilities could be built right next to family homes, which has accelerated impacts of environmental injustice in East End communities (Friedrich 2017). Indeed, the East End, the people and places like the East End represent Houston's environmental sink (Pulido 2017:529).

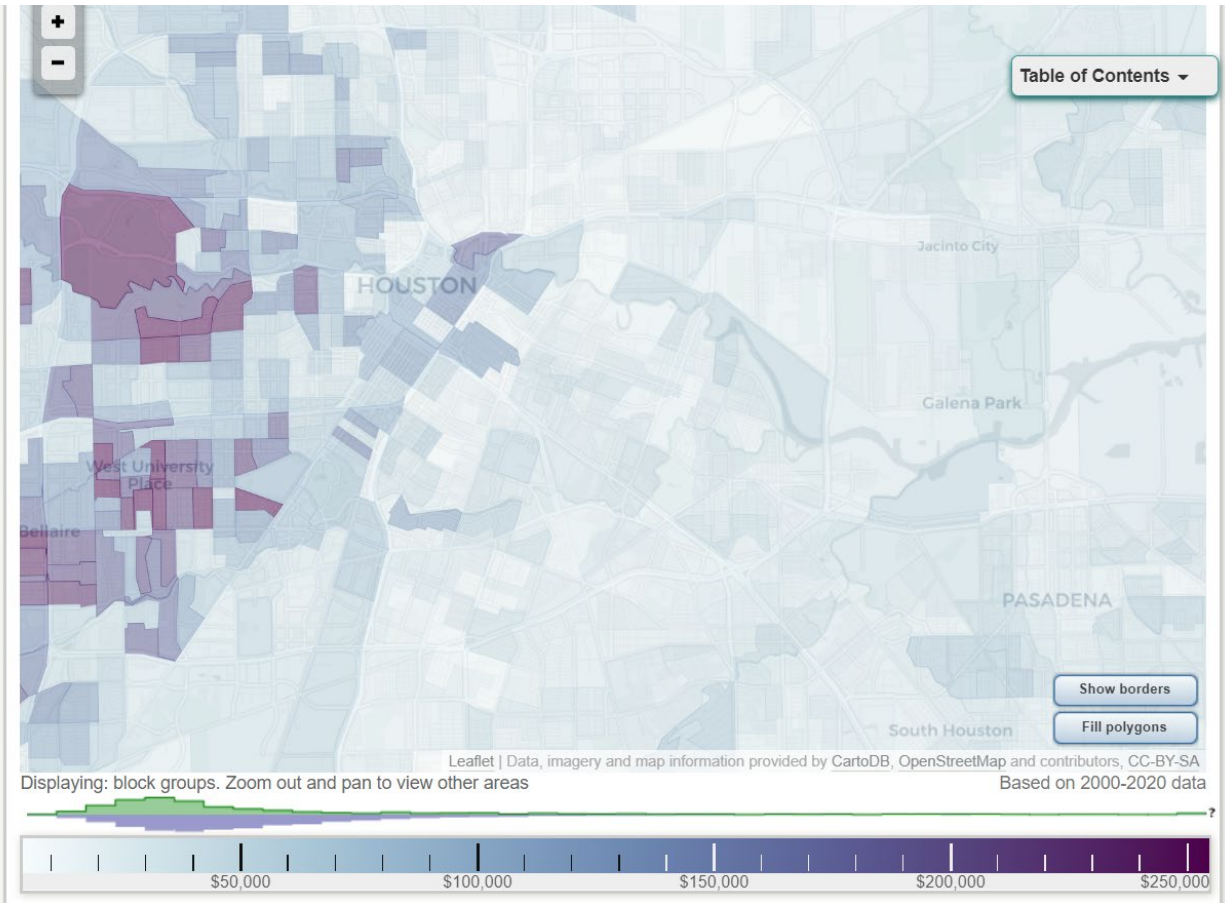


Figure 1: A screenshot of central Houston’s income distribution from city-data.com/income/income-Houston-Texas.html. There is a clear pattern of diminishing household income from west to east in the city.

Unlike the western section of the Buffalo Bayou, the East End was not preserved as tree-lined banks; those areas were taken by ports, warehouses, and the industrial complexes. Green capitalism is proving to be highly profitable in East End spaces by planning to return bayou banks to a “natural,” green state, complete with boat houses and an adventure park (BBP 2019:11,16). This process, however, represents a continuation of a history of oppression for the low-income residents of the area. In addition to commodification of nature, the BBP also seeks to appropriate aspects of the “natural” community residents into a spectacle to attract new, affluent residents who will enjoy and feel good about living in a “gritty” and “urban” neighborhood. Through

“restoring” natural spaces, taxes skyrocket, and like the 78202 neighborhood of San Antonio, long-term community members are likely to disappear with no knowledge of a happy resettlement. Similar examples of the disappearance of residents from commodified spaces occur in other parts of Texas, including near Grapevine Lake northwest of Dallas and in *Yanawana*, territory now known as San Antonio.

Grapevine Lake, Texas

Much like pushing the poor out of spaces through beautification projects, successful commodification of nature into a literal amusement park, especially around bodies of water, is not a rare occurrence and has been taking place in the Dallas-Fort Worth Area since the early and mid-twentieth century. In fact, it is quite common. In archived articles from the *Dallas Morning News* and through visiting the site today, you will find that Grapevine Lake in Tarrant and Denton counties, Texas is an example of commodifying nature that arguably exceeds the success of the BBP in Houston. The idea behind this initial suggestion for a new lake in North Texas centered on the notion that there is a dichotomy between *us* and a nature beyond the fences of our cities; in Grapevine Lake’s case, the otherworldly nature meant annual flooding of the Trinity River downstream in Dallas. In the rhetoric of this dichotomy, nature is decidedly against us and is itching to drive the progress of modernity into the ground. This notion extends back into history before capitalism. To quote a City of Allen public administrator lecturing at UNT regarding the colonization of North America, “We [the Europeans] had to conquer nature before it conquered us.”²

² In the Fall of 2018, I took an introductory city planning course at UNT. The instructor was a lecturer who also worked as a city employee for the City of Allen, Texas, and he worked in public administration. In a lecture detailing the founding of the United States, this instructor gave a presentation that centered on the

In this case, “nature” concerns the medium-sized stream called Denton Creek, a tributary that extends 68 miles from around Bowie, Texas to Carrollton, Texas, where it joins the larger Trinity River. The plan to dam Denton Creek for flood control was successful, and in 1948, the Grapevine Dam and Reservoir project began (USACE n.d.). As with the dispossession that has occurred in Buffalo Bayou-adjacent neighborhoods, it is important to understand what preceded Grapevine Lake in the Denton Creek watershed. Grapevine was a small community that relied upon the fertile and well-drained soils surrounding Denton Creek to support cotton and dairy farming. In the economic interests of Dallas and the surrounding area who experienced downstream annual flooding of the Trinity to which Denton Creek is a tributary, Grapevine farmers were dispossessed of their farming livelihoods and were forced out of the fertile valley (Lee 2012). Impounding Denton Creek would provide for flood control of the Trinity River downstream in Dallas. As Grapevine Lake matured in its construction, the rhetoric surrounding Grapevine Lake became about the amount of fun Dallas families would have on the lake on weekends (Robinson 1947). Here, the term “Dallas families” do not mean all Dallas families. By redesigning a community with a clean slate, much like in Biloxi, Mississippi after Hurricane Katrina, Grapevine developers could pick and choose who became the faces of the new Grapevine (Robinson 1947).

With new development in Grapevine, developers took the opportunity to control who and what moved into the new community. The community was redesigned to

false heroism of white colonizers who “conquered” and “tamed” nature in what is now known as the Americas.

include upscale businesses and activities to entice the rich to stay and play. In a 1947 *Dallas Morning News* interview, Grapevine mayor Floyd Deacon conveyed that he wanted to keep out honky tonks and similar businesses because these that would encourage Grapevine to turn into a place of “dubious repute” (Robinson 1947:1). Historically speaking, honky tonks—country/western dance halls—are places for mostly white, blue-collar workers to drink and dance; therefore, by keeping out “honky-tonk operator[s]” (Robinson 1947:1), developers specifically chose who to exclude. Rich developers created a mirror image of what they believed White Rock Lake to be: a place for the rich to live, play, and thrive (Robinson 1947:1). Today, Grapevine remains an affluent suburb that has grown exponentially since its re-inception. The city hosts a small, traditional, southern-style Main Street district, several five-star resorts, multiple wineries, a massive mall with LEGOLAND and an aquarium, and part of the DFW Airport. Grapevine certainly has a population of hidden low-income residents, but they are housed nowhere near the developments associated with the lake. Accumulation by dispossession as exemplified in Grapevine has deeper historical roots in the San Antonio area.

Yanawana (San Antonio, Texas)

Another example of commodification of nature that is much older than Houston and Grapevine exists where the Gulf Coastal Plains meet the Texas Hill Country. In south-central Texas, San Antonio is fabled to be founded on seven rivers that spring from the Balcones Escarpment. San Antonio was founded on the escarpment where natural springs exist(ed). In fact, the communities along the Interstate 35 corridor of central and south-central Texas were purposefully settled along the escarpment and the

region's spring-fed rivers. That part of San Antonio's history is true, but a lot of its history is romanticized colonization and hidden violence, some of which is represented in the city's most popular area, the Riverwalk.

Annually, the Riverwalk attracts approximately 11.5 million people and \$3 billion in tourist and local spending (Visit San Antonio 2020). Tourists (and some San Antonio residents) flock to the San Antonio river to experience drinks, food, and boat rides along a turquoise stream, lined with towering Bald Cypress and palm. All around, tourists can experience Texas history where the Old South meets Old Mexico. The romantic limestone walls, colorful lights and banners, and mariachi music hide a chequered past of San Antonio, which is not represented in tourist attractions such as Ripley's Believe It or Not across from the Alamo or the haunted Menger Hotel.

A more comprehensive history of San Antonio stems from the cultures of Indigenous people who occupied the region from the Balcones Escarpment to the coast (Collins 2004:116; Salinas 1990). The original people of South Texas and northeastern Mexico were groups of hundreds of bands of Indigenous Americans called *Coahuiltecan*s by the Spanish. Spanish invaders did not record cultural or linguistic information until after violent assimilation began, so they lumped all of the bands together, though the original communities may have been quite diverse; however, Coahuiltecan bands all practiced *mitote*, a ceremony with sacred Peyote (Chavana 2019:24 Salinas 1990: 27-114). According to the San Antonio Riverwalk Association, San Antonio's founding began in 1691, when the Spanish were staying with a Coahuiltecan band, and someone said, "Let's celebrate mass," and thus, mass was held in friendship which is assumed to have carried out through colonization (The San

Antonio Riverwalk Association 2020). The happy timbre of this historical event is far from the truth. Coahuiltecan bands were murdered and dispossessed of their lands and livelihoods, forced into Spanish missions, raped, and assimilated with no regard for individual band culture. Over time, surviving Coahuiltecan bands either assimilated to the Spanish-dominant culture or went into hiding as simply “Mexican” (Chavana 2019:24-25; Sanchez 2017).

A deeper, reflective history of San Antonio lays claim to the region’s earlier name, *Yanawana*, which is also the real, uncolonized name of the San Antonio River, so named by the *Payaya* Coahuiltecan band. Tourists will find the name “Yanawana” in few places among San Antonio historical sites and tourism pamphlets. Today, however, most of downtown San Antonio is a stage, upon which each restaurant and shop is an actor enlivening a place with a history that literally never existed. This fantasy benefits the city of San Antonio’s economy through the millions of tourists who visit, whereas a history of violent colonization would not. Clearly, contemporary San Antonio is a stunning physical environment, and socially, it’s quite well-known for friendly people and a slightly less-problematic past than its siblings across the American South. San Antonio, for instance, was the first major city in the South to desegregate swimming pools in 1954, 10 years before the passage of the Civil Rights Act (Gonzales & Romero 2014; Wolcott 2019).

Today, the product of the dispossession of Indigenous land benefits the Western populations in and around San Antonio through the tourist industry; however, the destructive history of colonizing space for the affluent and powerful still matters today (Harvey 2008:39; Harvey 2004:75). San Antonio is currently planning to demolish

buildings surrounding the Alamo to expand the former mission to its original size. The Tāp Pīlam Coahuiltecan Nation, a local Indigenous tribal group, is in a protracted legal battle with the Alamo Trust to protect local gravesites where Indigenous and non-Indigenous alike are buried (Hernandez 2020). Tāp Pīlam's voice against dispossession of sacred burial sites and ancestors frustrates the Alamo Trust because plans to expand one of the most famous tourist sites in the world must slow, costing the money they believe would be made through tourism. For the Tāp Pīlam Coahuiltecan Nation, however, the fight is to preserve bodily integrity, burial sanctity, and Indigenous sovereignty even though Texan and Mexican Indigenous tribes and bands do not hold United States federal recognition due to the unique colonization of Texas and Mexican Indigenous communities.

Commodification of nature in Houston's East End is playing out in similar to dispossession and commodification of nature at Grapevine Lake and *Yanawana*; development of the East End to create a renewed urban space even includes a planned adventure park (BBP 2019:2). The effects of commodification of nature for capital can filter through generations for centuries and erase disenfranchised people, Indigenous and non-Indigenous. For those without vocal power, the might of capitalist engines is overpowering. It is important to preserve the beauty of our lived environments but not at the cost of cultures, communities, and the environment itself.

Summary and Conclusion

In this chapter, I discussed the BBP as an act of gentrification through beautification. While beautifying spaces to create meeting spaces that are aesthetically pleasing and that include more greenspace can be good for communities, this chapter

highlighted the implications gentrification has for vulnerable communities, such as low-income and/or BIPOC communities. Through gentrification, historically vulnerable groups can experience eviction through rising taxes (Caltabiano 2019), which can place vulnerable residents at risk of being forced into even more environmentally risky spaces, closer to sites like industrial complexes (Pulido 2017:529), or being forced farther away from their familiar community (Caltabiano 2019).

Examples of primitive accumulation and accumulation by dispossession presented in this chapter illustrate the historical precedence for accumulation of wealth and high-quality environments that include access to shade, entertainment, and quality flood infrastructure. Greenspaces bring aesthetics and environmental benefits to communities, especially during disasters like floods; however, greenspaces can also be sites of discord in social discourse, both lived and rhetorical (Krupala 2019; Linz 2017). In order for greenspaces to truly be for the public good, traditionally silenced communities, such as low-income and BIPOC communities, must be included as active participants in beautification processes who will experience both the benefits and detriments of beautifying their communities. Only through local participation and inclusion can vulnerable communities thrive in spaces that are as equally beautiful and functional as their more affluent neighbors. In Chapter 3, I illustrate how the processes of disaster response in Houston are instrumental impediments for members of low-income communities—ones that set the stage for ongoing accumulation by dispossession and regimes of disaster capitalism.

CHAPTER 3

THE PERFECT STORM

In August 2017, Hurricane Harvey flooded the Houston region with record-breaking rainfall. In this chapter, I uncover the relationship between the contemporary American emergency management paradigm and how low-income communities are affected by actions taken within this paradigm. I outline the basic social structure of Houston and how, spatially, situatedness affected low-income community members' experiences of Hurricane Harvey. I then discuss interviews with two Houston residents who were affected by Hurricane Harvey in different ways: one by flooding, another by pollution from industrial-complex failures. I then turn to deconstruction of Harris County Office of Homeland Security and Emergency Management (HCOHSEM) disaster preparation documents. Finally, I synthesize information from the interviews and policy deconstruction to showcase where local emergency management practices fail to protect citizens in low-income communities. This chapter is divided into the following sections:

Houston's Social Spatiality

Of the 2.3 million people living within Houston proper, 22%, or around 500,000 people, live below the poverty line (United States Census Bureau 2017). Low-income residents run the economic and social engines of Houston, but they are often overlooked by policy-makers due to a lack of monetary/political power. The silence of vulnerable communities in the discussion of Hurricane Harvey-related recovery is the heart of this study.

In one sense, Houston is a neoliberal success story, taking seemingly

inhospitable land and turning it into a global powerhouse. Where Houston inverts neoliberal tradition is through its floodable space. In many societies, there are Others that are societally outcast due to social factors, such as income, race, gender, language, and place of birth, to name a few (Morrison 2017: 21; Said 1978). In this research, the Other is defined as a socially marginalized person due to their social status as low-income or as BIPOC, as those with lower wealth and non-White status were most adversely affected by Hurricane Harvey (Clay & Ross 2020:762 ; de Sherbinin et al. 2017). One of the main Other-defining concepts comes from Sai Englert (2020:1663) who illustrates that original inhabitants—in this study low-income and BIPOC communities—can find themselves in situations of dispossession because all classes of the colonizers (in this case more affluent residents and developers) participate in circulation of “colonial loot” that was dispossessed from the original inhabitants. Through this process, the original inhabitants become othered through their status as the conquered, reducing their human value and leaving them out of discussions about wealth, comfort, and, in this case, safety. What is also a defining factor of the othering process is the concept of normality, wherein the powerful actively marginalize groups that are different in order to establish a hierarchy that becomes deemed as normal (Morrison 2017:44 ; Said 1978:1). Going forward, this research follows the notion that the production of the Other is socially constructed and not an inherent fact of nature (Morrison 2017:35; Said 1978:1, 4). The artificial construction of the Other and its relation to the hierarchy created to imply an idea of normality is significant in disaster research because the Other’s sufferings are often dismissed in policy circles as of the Other’s own doing (Morrison 2017: 21, 23, 44).

Referring to Pulido's (2017) work, value of a person, especially in neoliberal societies, is based on the amount of economic power an individual brings to the table. Since Others in neoliberal societies tend to work in low-income jobs, their power is negligible, and their value to society as a human disappears into itemized categories that are considered replaceable commodities for hiring and firing due to the inexpensive cost of low-paying jobs (Pulido 2017). When constructing a community, societies tend to reserve the best and greenest spaces for those with the most social and economic power. Those represented as Other are left with less desirable land that is generally more at risk from environmental hazards (Pulido 2017). These places are environmental "sinks" where societally "undesirable" people and economic sectors pool together (Pulido 2017:529; Bodenreider et al. 2019:182). In Houston's case, however, upper-class populations live in the areas at higher risk for flooding. The reason for this is commodification of Houston's waterfronts, exemplified by Buffalo Bayou.

The Buffalo Bayou has been a site of commerce since the 1980s, and creating parks out of Houston waterways has been discussed since 1913 (Urban Land Institute 2018). Beautifying and gentrifying waterways to attract new and expensive land tenants extended to the coastlines along Trinity and Galveston Bays as Houston expanded; those who could afford the beautified water-adjacent properties moved in first. Commodification of the coastlines has been a major factor in tropical system-related destruction of communities along the Gulf Coast, which is home to diverse ecological communities such as coastal prairies, black mangrove swamps, and bald cypress swamps. The plants in these communities evolved to experience intense flooding and thus funnel water into the bays or into root and soil systems. When unimpacted by

economic development, these ecosystems also act as barriers against erosion and storm surge. Prairie grasses, for instance, hold soil in place to prevent erosion from coastal storms and storm surge (Watson et al. 2019: Introduction section paragraph 2). Similarly, black mangrove roots grow into the sand and back up to the surface, ensuring the plants' security against storm surge while also ensuring soil stability (Pennings et al. 2019:1, 6). Likewise, trees such as bald cypress form dense forests that are less likely to experience wind-related damage (Conner et al. 2014:811)

In contemporary urbanization of coastal ecosystems, high-end urban developers pave over coastal areas and remove protective habitats to construct unobstructed water views and access. Without such protection, expensive coastal neighborhoods are left undefended against damage from storm surge and its impacts reach farther inland. Commodification of Houstonian waterfronts caused many expensive neighborhoods to flood beyond repair during Hurricane Harvey, but for marginalized communities outside of designated flood risk zones, residents commonly experienced flooding with their damaged homes remaining structurally intact (Boyer & Vardy 2019).

The term "flood disadvantage" describes this situation of differential impacts better than "flood risk" when assessing the impacts of flooding on low-income communities. The reason flood disadvantage is more appropriate is those who are closer to water may be more at risk of flooding, but if such residents have more money, they can better afford insurance, rebuilding, and/or relocation (O'Hare & White 2018). Those with flood disadvantage may not experience the same level of home destruction, but they lack the resources to start or continue the recovery process, putting these residents at higher risk of not recovering (O'Hare & White 2018). Further, the structural

shell of their home often remains intact. In affluent neighborhoods, by contrast, flood insurance was available along with lawyers to sue on behalf of whole neighborhoods, and for those people financial capital was available to relocate or privately rebuild (Boyer & Vardy 2019). The situation of differential flood disadvantage in Houston can be characterized in terms of disparate access to forms of capital.

According to Pierre Bourdieu (1986), there are several kinds of capital that are important in societies: financial capital and social capital are important in this study. Financial capital includes money and its power in transactions. Social capital consists of a community's internal resources, its access to resources outside its boundaries and members, as well as knowledge of the innerworkings of broader society (e.g., political, legal, and economic structures at municipal, county, and other scales) (Bourdieu 1986). In what can be characterized as a neoliberal disaster complex—incorporating histories of land use and policy as well as current economic, social, and political geographies—recovery success is highly dependent on a community's social capital including awareness of what resources are available. For example, perhaps one neighbor's generator allows a few neighbors to stay in their home where they can find some comfort and security when otherwise they would need to leave to during a disaster. In addition, social capital indicates understanding of the local bureaucracy. Bureaucratic know-how is exceptionally powerful because it allows a group to move through social landscapes to acquire resources they may not be able to afford or find on their own (Boyer & Vardy 2019). Correspondingly, social capital is abundant in affluent, at-risk communities during disasters, and the powers of social capital in affluent communities relate closely to government-sanctioned planning. When affluent neighborhoods are

planned and built, local governments take stock of how much can be gained through high property taxes and high-paying jobs. Similarly to accumulation by dispossession, affluent communities are structured to bolster afforded luxuries, government protections, and positive bureaucratic interactions that low-income communities do not receive.

The power of abundant social capital has been evident in histories of communities directly adjacent to the Addicks and Barker Reservoirs on the west side of the Houston metropolitan area, near Katy, Texas. In the 1940s, city engineers built the two reservoirs to ensure flood control of Buffalo Bayou (Wallace et al. 2018). Most of the reservoirs' land is government-owned, but the outskirts of these reservoirs were left as private land, which developers acquired as Houston grew (Wallace et al. 2018). During Hurricane Harvey, the US Army Corps of Engineers (hereafter "the Corps") evacuated the neighborhoods within the reservoirs' zones and allowed those areas to flood, resulting in total loss of entire neighborhoods.

While devastating for the residents who lost homes, Addicks and Barker Reservoir residents had social capital to recover. Whole neighborhoods banded together in class-action lawsuits, which required the proficiency to get a powerful attorney. They also used their insurance policies, requiring the capacity to work through the complex web of coverage and exceptions in those policies. In addition, they relocated, requiring financial capital from the social system that afforded residents a high-paying job. Alternatively, their properties may have been bought out, requiring knowledge to negotiate with local governments to ensure acceptable prices for destroyed homes. The recovery social capital within these reservoir communities is not available to most low-income residents, particularly those who do not speak English as

a first language (Bodenreider et al. 2019:193; de Sherbinin et al. 2017).

Unlike the homes that were destroyed in affluent communities, homes in low-income communities may have flooded to the point of damage but not destruction. One experience for homeowners in low-income neighborhoods who relied on personal savings to recover but who did not relocate was that they were swindled out of their money by predatory contractors (Boyer & Vardy 2019). To profit off Hurricane Harvey, dishonest contractors promised repairs at affordable costs (Boyer & Vardy 2019). Once money was exchanged, contractors disappeared, leaving residents with limited funds stuck with unrepaired flood damage (Boyer & Vardy 2019).

Being stuck in a place brings a host of interlaced frustrations and terrors (Boyer & Vardy 2019). Low-income residents, for instance, may live in fear every time it rains because of the traumatic stress they endured as Hurricane Harvey forced water down streams that could not compensate for higher flows (Boyer & Vardy 2019; Bodenreider et al. 2019:183). In addition, if low-income residents attempt to relocate, they risk selling their water-damaged homes at below pre-Harvey market value, which means they are likely to fall into debt (Boyer & Vardy 2019). In fact, those who experienced any kind of damage related to Hurricane Harvey found themselves more at risk of debt accumulation due to recovery expenses (Kousky et al. 2020:113).

In contrast, as shown in the recovery of the Addicks and Barker reservoir neighborhoods, local governments can acquire damaged property through buyouts (Ross 2019). However, for low-income residents, buyouts did not happen as such is risky in low-income areas because the city must incur the expense of maintaining bought-out properties, and the City of Houston only provides buyouts for those within

100-year flood plains (Boyer & Vardy 2019; Ross 2019:Abstract). In addition, land in low-income areas cannot be sold at margins that are profitable for the city (Boyer & Vardy 2019). Absence of buy-outs and worsening home conditions left some families with no choice but to abandon their homes, leaving ghost neighborhoods with little traffic and acknowledgement from the City of Houston (Boyer & Vardy 2019).

Some low-income areas are bouncing back years after Harvey, such as Greater Greenspoint, which was heavily inundated (Boyer & Vardy 2019). Several flooded apartment buildings, for example, have re-opened after replacement and repair of damaged first floors (Boyer & Vardy 2019). These apartments are affordable to low-income residents, and new residents may believe they moved out of a flood zone (Boyer & Vardy 2019). In these low-income situations, however, the social capital power imbalance resides with landlords who know the laws and regulations of operating apartments and rental spaces.

In Greater Greenspoint, apartment property owners were not telling new tenants that the first floors were completely underwater during Hurricane Harvey. As a result, these new, first-floor tenants may not be aware that they become at risk of flooding when they move into their new homes, and may be shocked when alerted by current, upper-floor tenants (Boyer & Vardy 2019). Renters leasing repaired units is not limited to apartments, however. Some contractors came to Houston and flipped entire neighborhoods from damaged to repaired, from homeowner-majority to renter-majority (Kousky et al. 2020:93).

Renting a home is much more affordable than buying; however, like in Greater Greenspoint, some contractors who flipped flooded homes into rental properties came

into Houston between September to November 2017 to renovate (Kousky et al. 2020: 103). After renovations, these contractors rented to new tenants without disclosing the property's flooding history (Kousky et al. 2020: 93). While the Texas state property law protects homebuyers from non-disclosure, renting a property is not covered under this clause (Kousky et al. 2020:115; Texas Property Code §5.008).

Similarly, Harrisburg/Manchester, is a low-income predominantly Latinx community that has been largely ignored during recovery from Harvey. Unlike Greater Greenspoint, the community is surrounded by chemical plants (Friedrich 2017). There are around 500 hazardous material plants in the Houston area (Friedrich 2017). During Hurricane Harvey, many of them flooded and released toxic chemicals and metals into the flood waters. Those who came into contact with these chemicals became at risk for more than home damage. Toxicologists found Harrisburg/Manchester was exposed to benzene and dioxins, well-known carcinogens (Friedrich 2017). In addition, these chemicals can cause acute discomfort, such as headaches, dizziness, and tremors (Friedrich 2017; Bodenreider et al. 2019:183).

Many low-income residents cannot afford health insurance in addition to home and flood insurance, which are two separate expenses in the State of Texas. When members of vulnerable populations confront health challenges, they often do not risk doctor visits and will stay home to fight off illnesses in order to avoid high costs. Safeguards against toxic floodwaters would seem too important for Greater Houston, especially with around 500 chemical plants within the surrounding 10,000 square miles; however, Texas policymakers have successfully fought to keep federal regulations at bay (Friedrich 2017). Two years after Hurricane Harvey, for example, Tropical Storm

Imelda stalled over Houston, flooding the region again, causing equipment failures at industrial plants. In reaction to the flooding, Texas Governor Greg Abbott removed environmental protection restrictions for the over-100,000 pounds of toxins being released into the air in order to protect chemical companies from facing legal consequences (Trevizo 2019). This is concerning, especially because the State of Texas did not know the locations of chemical stores within the City of Houston. In addition, Occupational Safety and Health Administration (OSHA) is understaffed, meaning that prior to lifting these protections many violations already went unchecked (Collette & Dempsey 2016), leading to additional unchecked violations and free passes for chemical companies.

Due to lack of stringent emission regulation, according to the *Houston Chronicle*, residents in Beaumont, Texas living near the Exxon-Mobil plant regularly experience respiratory illnesses and headaches (Trevizo 2019). Medical treatment is not attainable for those who cannot afford health insurance in these situations. Flood disadvantage, thus, is an important topic of study in Houston. I now turn to documenting and summarizing interviews with two Houston residents of low-income communities, which is followed by deconstruction of disaster management policy narratives.

Photovoice Method and Interviews

In this section, I discuss the photovoice method used to conduct interviews, the content of the interviews, and what I learned from interviewees as co-researchers. I use the term “co-researcher” to reference those who lent their time and lived experiences to participate in this research. This terminology honors both those who participated and

the philosophy of photovoice, which recenters the study away from the academic researcher.

Photovoice

Photovoice is a method to create a database of photos documented by individuals to record aspects of their daily lives. The method dates back to the 1990s, when researchers Wang and Burris (1997) used photovoice to allow communities to generate their own findings about their community in order to detail how government affects lived experiences (Schumann et al. 2018:273). As a method, photovoice is recognized as a feminist approach that removes the academic researcher from the position of power and empowers those participating in the study (Schumann et al. 2018: 273). After photos are taken, co-researchers and the lead researcher participate in an interview either as a participant group or through individual conversations with the lead researcher.

In the interviews, co-researchers discuss the photos to reflect on their lived experiences and the intricacies of their community. The information is analyzed and processed during the interview, during which the lead researcher records what the co-researcher synthesizes. After co-researchers share their ideas, common threads can be discussed to find out what the community needs in order to enact social change from within the community. The method is highly qualitative, and the depth of cultural information is emphasized rather than large samples of respondents. In this study, both co-researchers were given pseudonyms to protect their identity.

Ernesto is the first of two co-researchers who participated in this study. We met through SER-Jobs for Progress Houston, a non-profit organization that helps train

retired, low-income seniors to return to the workforce. From Ernesto, I attempted to use a snowball method to find more co-researchers. Houston's COVID-19 crisis proved too challenging, and those leads disappeared as people fell ill or became isolated-in-place during the year-and-a-half of the pandemic. The second co-researcher is an acquaintance from social media, named Helene.

After the initial contact, the co-researchers and I discussed gathering photos from Hurricane Harvey and scheduled interviews. Because of the COVID-19 crisis in Houston, it was agreed that it would be safest for co-researchers to inventory and share photos they already possessed (see the appendix; several of Helene's photos were omitted to protect her anonymity). I also suggested using news clippings and news photos as sources of information. In each interview, I asked a set of demographic questions that pertained to income, race and gender identification, and disaster experience. Then, I asked each co-researcher to share their photos, which entailed geographic and temporal data that varied across the duration of Hurricane Harvey. We then discussed the thoughts, feelings, and responses the photos brought up. Given the freedom photovoice provides, the co-researchers and I went off topic several times, which added more context to their responses related to their photos.

Interviews

Ernesto

The first co-researcher, Ernesto, is from the Greater Third Ward in Houston, a community that experienced flooding during Hurricane Harvey. When I asked Ernesto if he had any pictures from Hurricane Harvey, he told me he lost those photos when he lost his phone during a near-drowning experience. Since Ernesto lost his photos, I

asked him to gather some pictures from local news articles. During his interview, I asked questions about social demographics. Ernesto identifies as Hispanic, male, gay, and low-income. His income is \$20,000 – \$25,000 per year. He rents his home in the Greater Third Ward, and he has experienced multiple hurricanes and tropical storms, having grown up south of Houston, closer to the coast.

Prior to Hurricane Harvey, Ernesto said he heard the storm was coming, but he said he's "always an optimist" and thought, "... well, it's not going to do that much." As the storm came in and stalled over Houston, Ernesto was trapped by flood waters that isolated his community. Ernesto described Hurricane Harvey as, "It wasn't wind. It was just rain ... you couldn't go anywhere." To understand how Hurricane Harvey flooding compared to past events in Ernesto's community, I asked, "... you said that ... your area is pretty ... susceptible to flooding. ... so what kinds of disasters have you experienced while living in your home?" Ernesto replied he's experienced "...four or five floodings." He then told two stories of how a simple trip can turn into a perilous event:

Like I was telling you the other day I was going to ... the Beltway and somebody had bought some food for me since I've been quarantined. And ... I just got a new car, and ... it was maybe raining like 15 or 20 minutes, and it was already flooding! And I just got to a really high point and just stood there in the middle of the street because there's no in and out. It floods like *that* here. Just the city needs a huge infrastructure flooding plan, but you know ... they don't have the money to do it. So ... you really feel threatened in Houston. You just do. ... because the weather just pops out of nowhere. You know, I was by Barnaby's over on West Gray one day, years ago, and I had a little Honda Prelude, and it just started raining real quick. And so I pulled over, and all these trucks came through there and just pushed the water and flooded my engine. And I lost that car in like 20 minutes. I mean, Houston, the flood, it happens so quickly. So ... you feel very unsafe.

Ernesto's most recent stories relate to Hurricane Harvey, but in 2001, when Tropical Storm Allison came into Houston, Ernesto lived near the White Oak Bayou. In his

account of the experience he said, "... they came and told us that if we didn't get out by boat, right then ... they were not going to... save us, and ... it was a two story." By Ernesto's telling, sixteen years before Hurricane Harvey, Houston neighborhoods were already going under water due to the high rainfall, and Tropical Storm Allison's highest rainfall total in Harris County was 11.01 inches less than Hurricane Harvey's highest rainfall total.

After Hurricane Harvey, low-income residents' ontological security (feeling protected by infrastructure) was destroyed (Boyer & Vardy 2019). Through the interview with Ernesto, it became clear that ontological security eroded long before flooding from Hurricane Harvey. From our conversation, it became clear that as a member of a low-income community he has learned to live with flooding as an occurrence that happens often in Houston. Residents of places such as the areas around the West Buffalo Bayou Park are not confronted with the same challenges as Ernesto because the area is designed to flood with minimal damage and post-disaster cleanup, which is a product of significant financial investment and development (Urban Land Institute 2018). Residents of the Greater Third Ward and similar low-income communities are far more likely to experience disasters in the same fashion as Ernesto.

At the end of the interview, the final question I asked Ernesto, based on his stories, was, "Would you ever consider moving out of Houston?" to which Ernesto vehemently replied, "I would *love* to! I would *love* to! ... I get it. You know, I could be ignored in another [place]—[where] it's not so hot, and you know, doesn't have hurricanes."

Ernesto's use of the word "ignored" is something to highlight in this part of the

conversation. Prior to this moment, Ernesto and I had deviated from the precise topic of Hurricane Harvey and discussed his personal history in Houston. Ernesto identifies as a gay man and has felt the pressure and ostracization many gay men experience if they do not fit the mold of having light skin, toned abs, and a hyper-masculine presentation. I will not go further on this subject here, but being ignored by his gay male-identifying peers for not fitting a stereotypical attractive mold has played a large part in Ernesto's life, and it does not end at feeling excluded by the LGBT+ community. During Hurricane Harvey, Ernesto felt ignored by the city. About his experience with Hurricane Harvey, Ernesto said, " ... I live by myself with my dogs, and I was just sunk here, you know. Nobody could come in or out to help me or anything." Being ignored in the city clearly relates to one's social capital (Boyer & Vardy 2019; Friedrich 2017; Pulido 2017). Ernesto expressed the sting of social marginalization within an already marginalized group, but also within Houston related to each flood event he experienced.

Helene

The second co-researcher I interviewed is Helene. Helene is a 26-year-old, who identifies as a white Hispanic female, and she makes around \$34,000 per year. She and her boyfriend own their home without home insurance, without health insurance, and without flood insurance. She lives in Pecan Park in East Houston. Like Ernesto, prior to Hurricane Harvey, Helene used Tropical Storm Allison as an experiential benchmark for extreme rainfall in Houston. Based on this previous experience, Helene did not evacuate during Hurricane Harvey. Helene said she purchased water and non-perishable food and hunkered down. After the storm, Helene said she had some roof damage, for which her family helped finance repairs. Helene said an insurance adjuster

came out to see the damage but determined the roof damage could not be definitively traced to Hurricane Harvey, so Helene received no aid for the roof.

Helene expressed being grateful that her home has two sources of income and was grateful for her family's financial and emotional support. She made note that her community in general is not so lucky. When I asked her if members of her community could afford something like a first aid kit, she said no. About evacuating, Helene said for her community, evacuation "is a luxury." The process is too expensive to afford the gas it takes and a hotel to stay in once a destination is reached. When talking about why she did not evacuate prior to Hurricane Harvey, aside from saying she historically hunkered down for tropical systems, Helene said professionally, a lot of people would not have had time. The night Hurricane Harvey moved into Houston as a tropical storm, Helene, among many others, had to work during the day. Helene said she and her co-workers were released at noon, leaving no time to evacuate, even if they wanted to.

At first, Helene was not sure she would be a good fit for this study because she did not experience flooding; however, immediately after Hurricane Harvey, Helene was subjected to chemical fumes that "burned" her lungs when she breathed. Helene said she and others in her community noticed something that "smelled like gasoline ... but then [she] noticed [her] lungs started to get irritated, like really, really irritated, and [she] ... just got a ... [face cover] and just said, '... I don't know what it is, but don't breathe it.'" On Facebook, Helene found that others in her community were noticing the smell as well. Several people called Houston's non-emergency city number to report the smell. "Weeks later," they heard a nearby refinery had leaks. When it comes to chemical plant accountability, Helene said, "We have TCEQ [Texas Commission on Environmental

Quality]. They have no backbone ... they kind of just turn their backs away. They don't really do anything." In total, this concerning moment of chemical fumes lasted for around 15 to 20 minutes. Afterward, Helene never went to a doctor because she has never had chronic respiratory issues.

In the post-Hurricane Harvey toxicology study of the nearby Harrisburg/Manchester neighborhood (Friedrich 2017), the damage in low-income neighborhoods was found to be similar to both Boyer & Vardy's study (2019) and the impacts that Helene and her neighbors experienced: most low-income communities were not totaled by floodwaters; therefore, residents stayed and tried to rebuild and, in the process, may have been exposed to air- or waterborne contaminants. Most members of the general public do not have the expertise to evaluate the proximate or lasting effects of exposure to environmental contaminants, which makes responses by city, county, and state agencies important. TCEQ's late and uninformative approach, described by Helene, appears to be common and is troubling. As mentioned in Chapter 2, after Hurricane Harvey, carcinogens and other toxins were found in low-income Houstonian homes after seeping into dry wall via floodwaters from chemical plants upstream (Friedrich 2017). Acutely, these toxins cause headaches, shortness of breath, and heart irregularities (Friedrich 2017; Bodenreider et al. 2019:182-183). Long-term, these toxins can cause cancer and other chronic health problems.

An important difference between Helene's and Ernesto' interview responses is that Helene considers herself to have recovered from Hurricane Harvey. For her, Hurricane Harvey was a record event, but it did not carry the isolation that Ernesto experienced. Helene differs from Ernesto in that she has a partner, and her family

helped her financially when Hurricane Harvey damaged her roof. In addition, Helene's social network provided support during and after the storm; for instance, she was offered places to stay outside of Hurricane Harvey's path. Helene's experience of Hurricane Harvey showcases the significant and practical importance of social capital during disastrous events. Social capital is a significant factor for disaster recovery that should be further investigated to better understand how to help those from low-income communities. To do so, I deconstruct emergency management policy narratives in the following section of this chapter.

Deconstructing Harris County Emergency Management Rhetoric

With the voices of Ernesto and Helene in mind, I deconstructed the HCOHSEM disaster preparation rhetoric on ReadyHarris.org. The documents I analyzed are:

- The *All Hazards [sic] Disaster Guide*
- The *2017 Hurricane Brochure*
- The *Emergency Essentials List*

The last two items in the list above are available in both Spanish and English. The *All Hazards Disaster Guide*, which includes information on hazardous material-related disasters, winter weather disasters, and what to do if you have children in school during a disaster, is only available in English. Overall, the ReadyHarris.org website is simple, and the preparation guides are located in the "Welcome" section. It is important to note that this study deconstructs a former version of ReadyHarris.org. The website was updated to reflect current Harris County administration after this deconstruction took place.

I discuss each document in its own section to fully describe the assumptions and

responsibilities each places upon residents. These disaster-related documents and their counterparts across the United States are influenced by neoliberalism, which promotes heavy fiscal conservatism in social sectors as well as individualism.

The All Hazards Disaster Guide

The *All Hazards Disaster Guide* is an 8-page document that includes a small blurb from the County Judge; a disaster supply kit checklist; and a brief overview of planning for hurricanes, tropical storms and floods, evacuation, reaching access and functional needs, preparing your pets, hazardous material incidents, and winter weather. It also includes a small list of resources and county contact websites. To begin deconstruction, I start at this document's publication date: 2014. As I previously stated, Hurricane Harvey hit Houston in 2017, and Houston has since experienced Tropical Storm Imelda, which stalled over Southeast Texas in September of 2019. To give Tropical Storm Imelda a quantitative relation to Hurricane Harvey, much of Harris County received 10 – 12 inches of rain in a five-day period during Tropical Storm Imelda (Landreneau et al. 2019) (Fig. 2). Chambers County, just east of Harris County, received 40 to 45 inches of rain (Landreneau et al. 2019) (Fig. 2). During Hurricane Harvey, Harris County received anywhere from 20 to 50 inches of rain (Blake & Zelinsky 2018) (Fig. 3). Given that the *All Hazards Guide* is seven years old, it does not prepare readers for record rainfall like those that occurred during Harvey and Imelda.

The first page of the *All Hazards Guide* includes a word from the Harris County Judge. Since the guide is outdated, the words come from former Harris County Judge Ed Emmett, who was unseated in 2018 by Judge Lina Hidalgo.

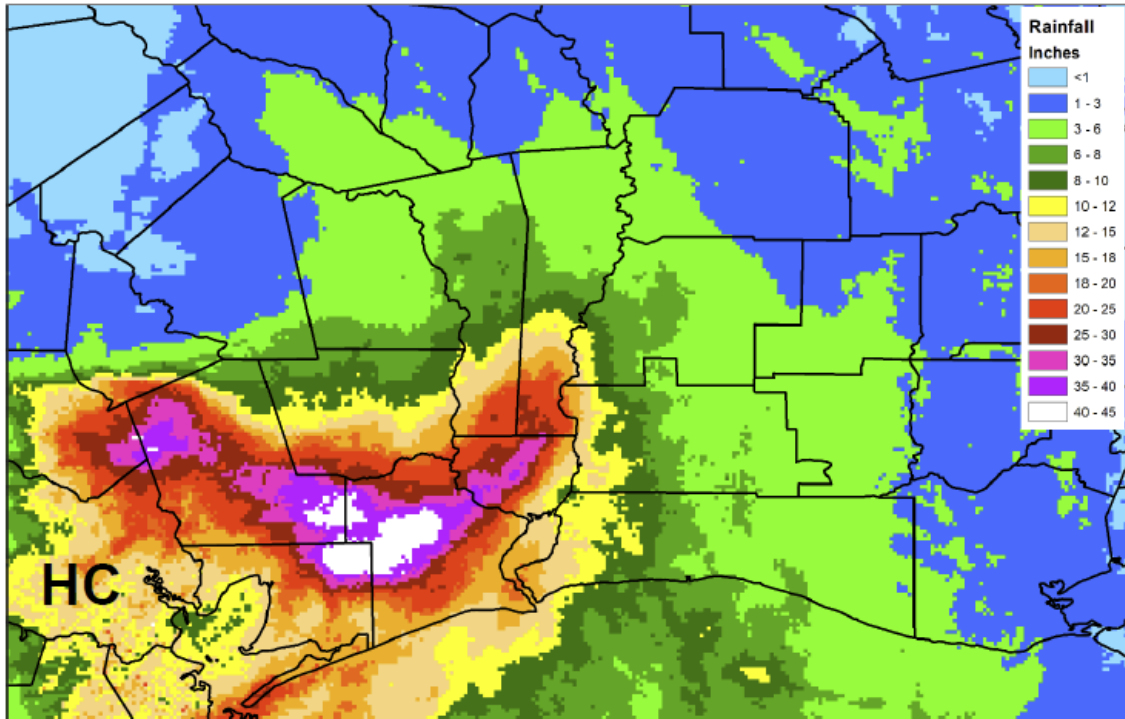


Figure 2: Tropical Storm Imelda rainfall totals from September 16, 2019 – September 21, 2019 (Landreneau, Brazzell, Mogged, Erickson R., & Warthen 2019). “HC” denotes Harris County and is my addition to the image.

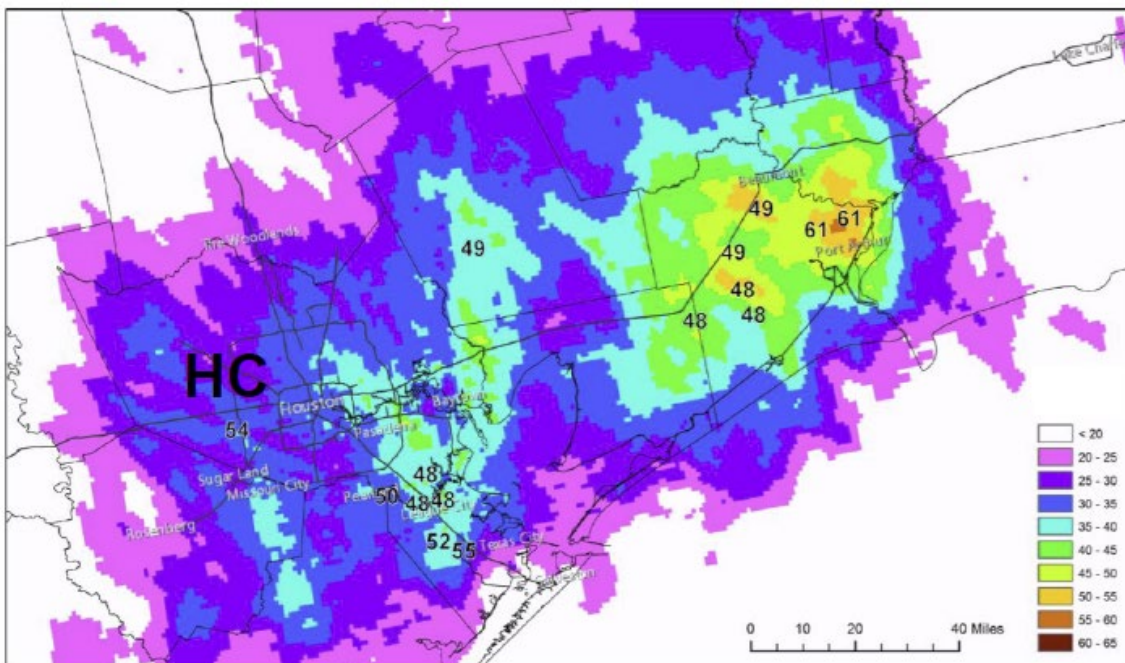


Figure 3: From the National Hurricane Center (2018): NOAA gauge-corrected, multi-radar multi-sensor quantitative precipitation estimates for Harvey (inches), 25 August-1 September 2017. The black numbers are actual rain gauge values, all of which exceeded the previous U.S. continental rainfall record for a tropical cyclone (Blake, E.S. & Zelinsky D.A. 2018). “HC” denotes Harris County and is my addition to the image.

What immediately stood out from former Judge Emmett (HCOHSEM 2014:1) were the following words, “There are four basic components to being prepared: get a kit, make a plan, stay informed, and get involved.” Simply following suggestions to “Get a kit” (HCOHSEM 2014:1) can be unattainable for low-income residents who may not be able to afford it. This suggestion is also concerning given that both Ernesto and Helene suggested that many in their communities do not have money to spend on first aid kits. Since disaster kits are not used every day, other necessities, such as food and rent payments take precedence. HCOHSEM’s suggestion to “... make a plan” (2014:1) is more achievable, but a successful plan depends on taking HCOHSEM recommendations and many in the general public may not be familiar with the complexities of disaster preparedness. Finally, the suggestion to “stay informed, and get involved” (HCOHSEM 2014:1) requires fiscal and social capital as well as navigation of bureaucratic innerworkings (Boyer & Vardy 2019). Access to financial and social capital can be a problem for low-income residents who may not have adequate money to spend on necessities for reliable technologies and may not have access to powerful and knowledgeable people, groups, or resources. In addition, “getting involved” (HCOHSEM 2014:1) may be difficult for low-income people working multiple jobs and long hours. Further, as stated in Ernesto’s interview, social isolation can be exceedingly damaging to a person’s recovery process if a person feels they have nowhere to go for help, which could represent a synergy of multiple factors discussed above (e.g., inability to purchase kits, not knowing actions to take or where to connect, or not having time to get involved).

Continuing former Judge Emmett’s words in the *All Hazards Guide*, “... your

ability to survive a disaster depends on you doing your part to prepare for the unexpected.” (HCOHSEM 2014:1) Emmett continues, “... your emergency plan remains the most dependable tool to keep you safe.” (HCOHSEM 2014:1) Placing the burden of preparation squarely on individuals rather than tax-funded, government emergency services is out-of-sorts given that members of the general public do not live their lives with natural or chemical disasters in mind; many are just trying to make ends meet. By placing the preparation burden only on the individual, there is room made for massive disparities in journeys to recovery solely based on who can afford to recover. Tax-funded emergency services have access to resources, funds, and recovery methods. When these agencies are well-funded, they can be of great service to those who need it. In Denton County, Texas, for example, the County Office of Emergency Management partnered with Denton County Public Health, among other groups of nurses, military, and citizen volunteers to operate arguably the largest and most successful COVID-19 vaccine drive in the United States at Texas Motor Speedway (Smith 2021). With access to funds, resources, and with the ability to operate as needed, the Texas Motor Speedway COVID-19 vaccine site was able to vaccinate 371,546 people (Smith 2021). This success included coordinating public transit from across the county to reach those who otherwise could not take private transportation to receive vaccinations (Harper 2021). This example stands in contrast to the individualism promoted in the *All Hazards Guide* of Harris County.

The rest of the *All Hazards Guide* consists of important phone numbers for county offices and tips for preparing for multiple hazards, including “Hazardous Material Incidents” (HCOHSEM 2014:6). In this section, HCOHSEM (2014:6) states, “Staying

indoors until the emergency is over may be much safer than going outside where the air may be unsafe to breathe.” Considering that many members of Houston’s low-income communities are situated in places with high environmental contamination risk, like Harrisburg/Manchester and Pecan Park in East Houston, low-income residents are exposed to potentially dangerous fumes from neighboring industrial complexes, which are allowed to build right next to family homes (Fig. 4). It may make no difference if people are indoors or outdoors.



Figure 4: Houston family home directly next to an industrial complex. Photo by Paul Hester (2017)

Environmental contaminants such as those in low-income areas of Houston, seep into soils and have effects on peoples’ bodies, manifesting in ways such as heart issues and respiratory problems (Friedrich 2017). To write that residents may have to “shelter indoors” during a hazardous material incident (HCOHSEM 2014:6) represents a

lack of awareness about the toxicological dangers already in play. A chemical spill or other related event is disastrous, but in terms of risk, responding to a disaster such as an oil spill while ignoring chronic risk of exposure to hazardous chemicals seems ill-prioritized. Toxic risk is determined by not only by a hazard's toxicity but also exposure duration (Toxicology Education Foundation 2019). By this assessment of risk, HCOHSEM should be working with other agencies to address chronic exposure to toxic chemicals already in the air in addition to the less frequent fires and spills.

Any chronic exposure to environmental contaminants from nearby industrial facilities is exacerbated by disasters like hurricanes. Zoning practices in the City of Houston are a key reason members of low-income communities endure risk of exposure (Rice Kinder Institute for Urban Research 2020). As shown in Figure 3, in Houston, it is possible to zone for residences in one parcel of land while having an industrial complex right next door. This concept of “no-zoning” parallels the idea that Houston is a unique mosaic, where everyone and everything is intermingled, creating an inclusive city culture. In reality, this no-zoning practice has sacrificed the health and quality of the environment of low-income communities and has led to the establishment of nearby environmental contaminant sinks (Pulido 2017).

In the next section, I deconstruct the *2017 Hurricane Brochure*. Both the *All Hazards Guide* and *2017 Hurricane Brochure* contain at-a-glance disaster prep kit lists. Since both of the lists are similar, I analyze the lists together. As I deconstruct the *2017 Hurricane Brochure*, I include discussion of the lists to show the real cost of what it takes to prepare for a disaster such as a hurricane based on HCOHSEM's recommendations.

The 2017 Hurricane Brochure

The *2017 Hurricane Brochure* is a short two-page document containing information about hurricane preparation tips and a map of evacuation zones. The brochure describes a shortened disaster preparation kit. Because the preparation kit in the brochure is similar to the *All Hazards Guide*, I combined the lists to create a basic disaster preparation kit based on the literature from HCOHSEM (Table 1).

The disaster prep kits suggested by HCOHSEM are just that—suggestions—but the power in these lists comes from the government office producing them. The power included in something as small as an infographic from an official source is substantive because what is recommended can become normed but may not be achievable by members of low-income communities. When considered with former County Judge Ed Emmett's words, the power underlying the lists is significant. Because the individual must assume responsibility for disaster preparation, the cost of what it takes to be considered prepared should be clear. Table 1 is an itemized list of every item recommended by HCOHSEM. To favor the notion that disaster preparation is doable for everyone, I chose to use Walmart.com as a sample retailer. Walmart is ubiquitous in the United States and is known for affordable, if not inexpensive, products. The items I chose are the least expensive available items. I profile costs for a community member who is single with a pet dog, no children, and no secondary income. Under "Personal Hygiene," I included pads to represent residents who experience menstrual periods, as bodies that experience periods are subjected to the added cost of necessary tampons and pads. To compensate for a diversity of bodies and their dynamic menstrual processes, I chose pad packs that had the most variety in pad size.

Table 1: Deconstructed budget of the cost to prepare for a disaster (at-a-glance)

Item	Cost/Unit	7-Day Cost
Food and Water		
Great Value (GV) canned chicken 2 pack	\$7.72	\$30.88
Bush's Pinto Beans 3 pack	\$4.08	\$12.24
Great Value Gallon of Water (1 gallon/person/day)	\$0.80	\$5.60
First Aid		
Equate All-Purpose First Aid Kit (85 items)	\$9.66	\$9.66
Backup Prescriptions (Assume the resident has medical insurance that covers prescriptions.)	\$0.00	\$0.00
Acetaminophen GV (200 ct bottle)	\$3.22	\$3.22
Personal Hygiene		
Equate Moisturizing Hand Sanitizer 34 fl oz	\$3.97	\$3.97
Angel Soft Toilet Paper (12 pack)	\$5.97	\$5.97
Scott Paper Towels double roll (6 ct)	\$5.98	\$5.98
Dental and Vision (Assume the resident has dental and vision insurance.)	\$0.00	\$0.00
Change of clothes, shoes, and blanket (Assume the resident has these items.)	\$0.00	\$0.00
Stayfree Ultra-Thin Pads, Regular Wingless Unscented 44 ct	\$4.74	\$4.74
Zest Coco Butter & Shea 8 pack bar soap	\$2.98	\$2.98
Lighting		
Rayovac Mini Flashlight Batteries included	\$9.98	\$9.98
Duracell AAA Pack of 4 (x3) (1 pack initially for the LED lantern and two packs for various replacement needs)	\$7.47	22.41
Communication		
Stansport FM/Weather Band Dynamo Radio with LED Light	\$17.75	\$17.75
Extra radio batteries (None; the weather radio has a hand crank.)	\$0.00	\$0.00
Tools		
Stalwart Household Hand Tools, Tool Set – 6 Piece set	\$11.70	\$11.70
Bulldog Hardware 3/4 in. 18 Gauge Stainless Steel Nails 1.5 oz.	\$1.97	\$1.97

(table continues)

Item	Cost/Unit	7-Day Cost
Cash (Assume cash is negligible in this list.)		
Pet Items		
Vibrant Life 15 lb Chicken and Rice recipe	\$12.54	\$12.54
GV Gallon of water	\$0.80	\$4.00
MidWest iCrate Metal Dog Crate (Assume the resident has a leash, bowls, pet bedding, and toys.)	\$16.99	\$16.99
Total		
Total without tax		\$133.86
Total with tax		\$144.99

As shown in Table 1, the total cost of the HCOHSEM-recommended materials is \$144.99 (tax included). While this price-point may be affordable for middle-income to wealthy residents, for members of low-income communities \$144.99 can come down to preparing for a hurricane, keeping the utilities paid, or buying groceries. The assumption that a resident has income to spend on disaster kits is embedded in the brochure lists, but such kits are used less often than utilities, medications, and car maintenance bills (if they are used at all). The assumption that a person has disposable cash for a kit represents an unacknowledged norm underlying disaster response that derives from a position of privilege. When a person has a salary of \$140,000/year, such as former County Judge Ed Emmett (TexasCourts.gov 2013), the idea of spending \$145.99 on a quick kit is comparatively easy. In sum, the norms underlying the brochures concerning disaster preparation (particularly the kit lists), do not consider *where* a resident lives, *what* kind of embedded disaster to prepare for, *how much* a resident earns per year, *who* lives with a resident, and so on. Similar assumptions underlie the longer, more complete *Emergency Essentials List*, which I deconstruct in the next section.

The Emergency Essentials List

The *Emergency Essentials List* (EEL) is a one-page PDF published in 2017 and is endorsed by former County Judge Ed Emmett. It is a long checklist of items suggested by HCOHSEM for disaster preparation. Overall, the design is clean and simple.

As profiled for the brochures in Table 1, the profile of costs from the EEL for a single resident with a pet and no secondary income can be found in Table 2. The list in Table 2 is much more comprehensive, including items that support home safety measures, endorse insurance, suggest pet micro-chipping, and recommend evacuation items.

Table 2: Deconstructing a disaster prep budget (Full Kit)

Item	Cost/Unit	7-Day Cost
Food and Water		
Great Value (GV) canned chicken 2 pack	\$7.72	\$30.88
Bush's Pinto Beans 3 pack	\$4.08	\$12.24
goodcook Can Opener (hand-operated)	\$3.87	\$3.87
GV Plastic Plates (50 ct)	\$4.48	\$4.48
GV Plastic Party Cups (50 ct)	\$2.98	\$2.98
GV Everyday White Cutlery (120 ct)	\$3.64	\$3.64
Great Value Gallon of Water (one gallon/person/day)	\$0.80	\$5.60
First Aid		
Equate All-Purpose First Aid Kit (85 items)	\$9.66	\$9.66
Backup prescriptions (Assume the resident has medical insurance that pays for their prescriptions.)	\$0.00	\$0.00
Personal Hygiene		
Equate Moisturizing Hand Sanitizer 34 fl oz	\$3.97	\$3.97
Angel Soft Toilet Paper (12 pack)	\$5.97	\$5.97
Scott Paper Towels double roll (6 ct)	\$5.98	\$5.98

(table continues)

Item	Cost/Unit	7-Day Cost
GV Small Kitchen Trash Bags 4 gal (40 ct)	\$3.34	\$3.34
Dental and Vision (Assume the resident has insurance.)	\$0	\$0.00
Change of clothes, shoes, and blanket (Assume the resident has these items.)	\$0	\$0.00
Clean Air Items		
3M™ Aura™ 9211+ N95 Particulate Respirator (box of 10)	\$22.49*	\$22.49
Husky 10x25 Clear Sheeting, 3.5mil	\$9.27	\$9.27
Utility Duck Tape Brand Duct Tape 1.88 in x 55 yd	\$2.97	\$2.97
Baby Items (Assume the imaginary resident does not have children.)	\$0	\$0.00
Lighting		
Rayovac Mini Flashlight Batteries included	\$9.98	\$9.98
Duracell AAA Pack of 4 (x3 1 pack initially for the LED lantern and two replacement pack for various needs)	\$7.47	22.41
Ozark Trail LED Camping Light 100 Lumens. Camping Lantern. (Model 4878)	\$3.46	\$3.46
BIC Multi-Purpose Lighters	\$4.97	\$4.97
Communication		
Stansport FM/Weather Band Dynamo Radio with LED Light	\$17.75	\$17.75
Landline phone (Omit this item; Phone services are first to go down during disasters, and many people do not have landlines anymore.)	\$0	\$0
Extra radio batteries (None; the weather radio has a hand crank.)	\$0	\$0
Extra cellphone battery (omitted due to newer phone models)		
Belkin 24W Dual-Port USB-A Car Charger + 5ft. USB-C to USB-A Cable, Black	\$19.94	\$19.94
Ozark Trail Safety Whistle	\$2.56	\$2.56
Family Safety Items		
Kiddie Fire Sentry Micro Profile 3-Year Smoke Alarm, 9-volt battery	\$4.44	\$4.44
Duracell Coppertop Alkaline 9-Volt Batteries (2 pack for extra smoke alarm batteries)	\$7.98	\$7.98
Kidde AA Battery Operated Basic Carbon Monoxide Alarm	\$16.84	\$16.84

(table continues)

Item	Cost/Unit	7-Day Cost
Everready AA batteries 4 pack	\$2.18	\$2.18
Kidde 1A10BC Basic Use Fire Extinguisher, 2.5 lb	\$17.44	\$17.44
Clorox Disinfecting Bleach 30 oz	\$3.08	\$3.08
Neutrogena Pure & Free Baby Mineral Sunscreen with SPF 50, 3 fl oz (Mineral sunscreen was chosen because many regular [chemical] sunscreens contain oxybenzone, a known irritant.)	\$10.97	\$10.97
Cutter Unscented Insect Repellant Aerosol 6 oz	\$2.84	\$2.84
Ozark Trail Folding Shovel	\$10.44	\$10.44
Stalwart Household Hand Tools, Tool Set – 6 Piece set	\$11.70	\$11.70
Bulldog Hardware 3/4 in. 18 Gauge Stainless Steel Nails, 1.5 oz	\$1.97	\$1.97
Transportation Items		
Rand McNally 2021 Road Atlas Paperback	\$11.40	\$11.40
Stalwart Emergency Roadside Automobile Assistance Kit (30 pc)	\$12.99	\$12.99
Slime 11-piece Deluxe Tire Plug Kit W/ glue	\$5.88	\$5.88
Briggs & Stratton 4-Cycle Engine Oil, 48 oz	\$7.64	\$7.64
Games, books, puzzles (Assume the imaginary resident has these items.)	\$0.00	\$0.00
Pet Needs		
Vibrant Life 15 lb Chicken and Rice recipe	\$12.54	\$12.54
MidWest iCrate Metal Dog Crate (Assume the imaginary resident has a leash, bowls, pet bedding, and toys.)	\$16.99	\$16.99
GV Gallon of water	\$0.80	4
Pet First Aid Kit	\$14.99	\$14.99
Subtotal		
Full Disaster Prep Kit Total without a generator		\$333.03
Solar Power Station With 110V AC Outlet, DC12V, USB Output for Camping Travel CPAP Emergency		\$150.12
Full Disaster Prep Kit total with generator		483.15
Miscellaneous Items		
Flood insurance (TDI.Texas.gov)	\$58.33	\$58.33
Avg Cost to get a pet microchipped (without app fees)	\$45.00	\$45.00

(table continues)

Item	Cost/Unit	7-Day Cost
Acetaminophen GV (200 ct bottle)	\$3.22	\$3.22
Stayfree Ultra-Thin Pads, Regular Wingless Unscented 44 ct	\$4.74	\$4.74
Zest Coco Butter & Shea 8 pack bar soap	\$2.98	\$2.98
Grand Totals		
Full Disaster Prep Kit total without tax		597.42
Full Disaster Prep Kit total with tax		646.71

*Special price on <https://www.envirosafetyproducts.com/3m-9211plus-aura-n95-respirator.html>

Preparing for disaster based on HCOHSEM's unabridged disaster preparation kit totals to the substantial sum of \$646.71. For former County Judge Ed Emmett, that is less than two days of work in the office (TexasCourts.gov 2013), but for low-income residents, such a cost represents a monthly rent payment. According to the postings on Realtor.com (2020), the Greater Third Ward of Houston rent prices are around \$750/month for a one-bedroom apartment if the property has not been gentrified. In addition, disaster prep kits are not a one-time purchase because items must be replaced over time. Canned foods and batteries, for instance, can expire, deteriorate, or be defective, and pests can get into preparation kits over time.

There are some items in the EEL budget that are particularly expensive in 2021. For example, disposable masks are at high prices due to the current COVID-19 pandemic. In addition, some items were unavailable through Walmart.com. To ensure I selected the least expensive items, I searched to find what was readily available with the lowest price and shipping cost.

When pricing power generators, for example, I selected the least expensive model, which can power a small fridge or CPAP machine. When pricing flood insurance, I consulted TDI.Texas.gov. The Texas government records the average cost of flood

insurance to be about \$700/year (Texas Department of Insurance 2020); however, due to the nature of insurance, prices can vary from individual to individual. To determine the monthly cost of flood insurance, I divided \$700 by 12 months. When pricing pet supplies, I followed EEL recommendations; however, most pet lovers understand that carrying a picture of your pet, as suggested, is good, but micro-chipping is more efficient and permanent. I used PetFinder's average cost of \$45 for a dog's microchipping procedure (n.d.). The \$45 is low in that it does not take into account the cost of initial intake—if the pet has not been to the vet performing the procedure—and does not consider the cost of the appointment to see the pet at the time of the procedure.

To summarize, the disaster preparedness literature available to Houstonians is representative of neoliberal values in which individuals are responsible for addressing needs that impact entire communities. Such is clear in the statements by Judge Ed Emmett and in the preparation kit recommendations available through HCOHSEM. The recommendations do not account for differential social and financial capital between affluent and low-income communities. Correspondingly, and though the sample is small, the narratives of Ernesto and Helene are not surprising and are echoed in other, similar studies (Boyer & Vardy 2019; Sonn & Shin 2020; Pralle 2019; Collins et al. 2019; Chakraborty et al. 2021; Clay & Ross 2020; de Sherbinin et al. 2017; Flores et al. 2020). Their frustrations and fears make sense in the context of the norms of disaster preparedness underlying recommendations in the brochures and in the EEL.

Summary and Conclusion

Houston's geographic social structure is unique in that it does not necessarily place low-income neighborhoods in areas that experience total flood destruction. In fact,

the city's low-income neighborhoods are generally at mid-elevation and experience flooding that tends to result in partial building damage. This is significant in that these communities do not receive help from the city through buyouts as do members of more affluent communities where homes built directly in floodplains are destroyed. Such buyouts enable relocation by comparatively affluent citizens (Boyer & Vardy 2019). Members of low-income communities also live in close proximity to industrial complexes that pollute the environment and affect residents not only during flood events but in their daily lives through air pollutions (Friedrich 2017). The responses of my co-researchers, highlight that broader trends but less intimate portrayals from other similar studies (Boyer & Vardy 2019; Friedrich 2017) in the context of post-Harvey Houston are not anomalies. Ernesto's and Helene's findings highlight that low-income residents in Houston are at less risk of flooding; however, flood disadvantage is more problematic because low-income residents are left with partially damaged homes and are thus more likely to be at risk of living in dangerous conditions than their more affluent neighbors (O'Hare & White 2018).

In the best interest of my co-researchers' safety, I asked them to provide pictures they already had from Hurricane Harvey rather than take pictures of places during a pandemic. I also adapted to each co-researcher to ensure this study was not a burden on their mental health in a time when, in addition to the COVID-19 pandemic, violent anti-science and white-supremacy was surging throughout the United States. These conditions also substantially decreased opportunities to engage other participants.

In sharing their experiences, the co-researchers and I came to several conclusions: their experiences of being marginalized and isolated is not limited to

disastrous events. Much of their daily lives revolve around living in communities that are constantly exposed to flooding risk (Ernesto) or living in communities that are chronically exposed to chemically toxic air (Helene). These populations are not forgotten by accident. The West Buffalo Bayou area in Houston is in a highly flood-prone area (Urban Land Institute 2018). The difference between Ernesto's and Helene's communities is the fact the West Buffalo Bayou area was redesigned to flood frequently and with high volumes of water, so the residents there stay relatively safe. Ernesto and Helene, however, do not live within communities that witness similar levels of disaster planning and development.

To further investigate Ernesto's and Helene's stories of bearing the city's burden of disastrous events, I looked into HCOHSEM's publications on disaster preparation. I analyzed the disaster preparation documents on [ReadyHarris.org](https://www.readyharris.org), the site used by HCOHSEM for public disaster information. I deconstructed:

- *The All Hazards Disaster Guide*
- *The 2017 Hurricane Brochure*
- *The Emergency Essentials List*

By deconstructing material intended for all residents of Harris County, I discovered the language and rhetoric used by HCOHSEM is not geared towards the diverse population and needs within Harris County. Based on former County Judge Ed Emmett's words, HCOHSEM follows an individualistic approach to preparation, which is common in neoliberal settings; however, leaving the heavy burden of disaster preparation to individuals skews recovery accessibility to the middle- and upper-class populations that can afford to recover and/or that have access to recovery resources.

As of May 2021, there are positive changes in disaster planning and response in low-income Harris County communities. Based on the current COVID-19 safety measures in Houston, current-County Judge Hidalgo has taken the liberty to challenge the Texas Governor's office through mask mandates. Harris County's disaster adaptation seems to be moving towards a more inclusive philosophy, wherein the communities are responsible for members as well as the members of adjacent communities in their areas. However, until real change ripples into the policy documents and publications, residents will inherit Emmett's individualist, neoliberal recommendations.

When intertwining the rhetoric from HCOHSEM and the stories from Ernesto and Helene, I found there are gaping holes in the preparation documents for those in low-income communities. The cost to prepare a small disaster preparation kit is around \$50, and a fully completed kit costs roughly \$650. While these costs are hypothetical, they are representative and conservative as I used [Walmart.com](https://www.walmart.com) almost exclusively to build the deconstructed lists. The exceptions to using [Walmart.com](https://www.walmart.com) came when I could not find an item, such as face masks. To favor the neoliberal norm that disaster preparation is attainable for everyone, I chose the least expensive items possible. In addition, I considered the hypothetical situation to apply to a single person, who lives alone, and who experiences menstrual periods. The imaginary resident in this portion of the study lives alone, has a dog, uses menstruation products, and has no children. The cost of a kit would amplify substantially in households with larger families. Based on my deconstruction of the lists provided, creating a disaster preparation kit, even a short one, can be unattainable for many low-income residents who would be forced to decide

between paying the bills or creating a disaster prep kit that may be used once or twice per year (if at all).

Ultimately, the publications presented by HCOHSEM are not designed for low-income communities. The publications are biased towards those who can afford to buy quality items that will last in storage and during use, not inexpensive flashlights that may break after limited use. HCOHSEM, and other government entities, must listen to the stories of those most impacted by disaster and disaster recovery, such as Ernesto and Helene. Indeed, a contribution of this thesis is that their stories are better known. Without listening, governments fall short of preparing for anyone outside of middle-income and wealthy residents. Low-income populations need more help and more transparency from their governments because like their more affluent neighbors, vulnerable populations also pay taxes and deserve equitable access to disaster preparedness and recovery.

CHAPTER 4

CONCLUSION

In this study, I sought to find clarity in the link between low-income communities and disaster recovery post-Hurricane Harvey in Houston, Texas. What became apparent through combing disaster recovery and EJ literature is that low-income communities experience more obstacles in their disaster recovery, and race also heavily impacts how and if a person recovers from disaster.

In Chapter 2, I showcased literature about how infrastructure, particularly green space infrastructure, helps to reduce impacts of flooding. On the other side of green-space-as-effective-flood-infrastructure, it is clear that the commodification of greenspace as an amenity drives up area taxes and can force whole neighborhoods of people to move in favor of the City gaining higher profits from wealthier residents.

Beautification and commodification of greenspace is not unique to the East End or Houston. In other places across Texas, greenspace has been commodified and dispossessed from vulnerable populations for the wealthy to enjoy. Grapevine Lake in North Texas is a prime example, as fertile land was taken from farmers to provide flood control downstream on the Trinity River and to create a place for white, wealthy Dallas families to enjoy on the weekends (Robinson 1947). In addition, the area known as *Yanawana* (San Antonio) has been a site of genocidal dispossession of land from Indigenous peoples for Spanish *conquistadores* to recreate their vision of civilization (Salinas 1990; Sanchez 2017). Today, San Antonio continues to be a site of accumulation by dispossession through legal battles over Alamo burial grounds and through co-opting beautiful, lush spaces for tourists in order to generate millions of

dollars for the City (Chavana 2019; Gruber 2014; Hernandez 2020; San Antonio Riverwalk Association 2020) .

In Chapter 3, I included co-researcher interviews that discussed what a lived experience is like in low-income communities in Houston, Texas. The common threads between both co-researchers are feelings of neglect from the City of Houston as well as recognition of the necessity of social capital to support recovery. That is to say that Both Ernesto and Helene feel that their communities are after-thoughts in flood infrastructure and pollution regulation, respectively, and each feels that without strong ties to others in their families and communities, disaster recovery has been largely unattainable.

In the second part of Chapter 3, I deconstructed public disaster preparedness literature from HCOHSEM. I critically analyzed available disaster preparedness lists to find out just how much an individual must spend to be considered prepared. In addition, I critically analyzed the rhetoric in the literature written by former County Judge Ed Emmett. I found the public disaster preparedness literature to place the burden of preparedness on the individual rather than working towards creating better avenues for the most vulnerable to access communal disaster resources. I then suggest that disaster recovery move away from focusing on individual preparedness to a state in which the most vulnerable communities are the focus for preparation to make disaster recovery more equitable.

Overall, this study provides vital information for future disaster studies. Through the examination of current literature and beautification, interviews with those who experienced Hurricane Harvey, and deconstruction of HCOHSEM disaster literature and disaster preparation lists, the answers are clear to the question posed in this thesis:

how does accumulation by dispossession of green space and access to a healthier life affect low-income residents' ability to recover after natural disasters? In Greater Houston, accumulation by dispossession of greenspace and access to a healthier life affects low-income residents' recovery through the physical situatedness of citizens in environmentally risky areas that have poor flood infrastructure, like those in co-researcher Ernesto's neighborhood in the Greater Third Ward. In addition, environmental injustice continues with the City of Houston allowing industrial complexes that create pollution to occupy space that is directly adjacent to neighborhoods such as those in and near the East End: Harrisburg/Manchester and Pecan Park, where co-researcher Helene lives (Friedrich 2017; Rice Kinder Institute for Urban Research 2020).

Through being forced to live in these risky areas through affordable housing, low-income residents are subjected to hazards like smaller floods and pollution frequently, outside of major disasters. When major disasters strike, the disenfranchisement of low-income communities is exacerbated through the sheer cost of disaster preparation and recovery. The overwhelming burden of constant marginalization and major disaster comes together in a flood of vicious cycles that include poverty, lack of insurance, and a struggle literally to keep heads above water. The struggles experienced by low-income communities in disaster then create further barriers to recovery, leaving communities continually unprepared for the next disaster. O'Hare and White refer to this synergistic series of problems as "flood disadvantage" (2018).

Though I employed multiple methods, such as photovoice and literary deconstruction, there are several limitations to this study. The first is the lack of

inclusion of queerness as a marginalizing factor. Co-researcher Ernesto and I briefly discussed his LGBT+ identity as a factor for isolation pre-disaster that further reduces his chances of recovery post-disaster. Future studies should investigate the intersectionality of queer marginalization as a further obstacle in recovery efforts. Factors such as being BIPOC and/or low-income are not isolated from being LGBT+. Combined, these factors create facets of lived experiences that can hinder successful disaster preparedness and recovery, especially in states, like Texas, where a conservative government is more apt to issue anti-LGBT+ legislation.

The second limitation of this study is the small sample size used in the photovoice. Using photovoice in disaster studies can provide necessary and often overlooked perspectives of disasters. While this study was limited in sample size due to the COVID-19 crisis, the study still provided detailed accounts of traumatic disaster and its effects on co-researchers almost four years after Hurricane Harvey. Accounts like those provided by the co-researchers show the gaps that exist in emergency management policy, which can then be further examined by disaster scholars and public administrator practitioners alike to revise and create policies for more equitable disaster preparation, response, and recovery.

APPENDIX
CO-RESEARCHERS' SHARED PHOTOS



Figure A.1: Bray's Bayou flood photo by Ahmed Gul (2017). Photo submitted by Ernesto.

Source: Fernandez, L. (2017). *"It was hard to see in person": California native takes drone video of Houston's Brays Bayou*. Retrieved August 3, 2021, from fox2detroit.com/weather/it-was-hard-to-see-in-person-california-native-takes-drone-video-of-houstons-brays-bayou.amp.



Figure A.2: Bray's Bayou flood photographer unknown (2017). Photo submitted by Ernesto.

Source: Tribune Media Wire. (2017). *Houston Police Officer Drowns in Hurricane Harvey Flooding*. Retrieved August 3, 2021, from who13.com/news/houston-police-officer-drowns-in-hurricane-harvey-flooding/.



Figure A.3: Thumbnail photo from Youtuber Jonbal35 (2017). Photo submitted by Ernesto.

Source: Delaughter, G. (2017). Long-Delayed Houston Flood Control Project Could Soon Become A Reality. Retrieved August 3, 2021, from houstonpublicmedia.org/articles/news/2017/10/17/243002/long-delayed-flood-control-project-could-soon-become-a-reality/.



Figure A.4: Flooding at Mason Park. Photo taken and submitted by co-researcher Helene.

As Hurricane Harvey slammed into the Texas Gulf Coast and brought catastrophic flooding to the Houston area, the shutdown of the region's petrochemical plants and refineries filled the air with toxic chemicals. But government officials had no way of knowing exactly what was in the air because the monitoring network had been shut down to protect it ahead of the storm.

In a span of five days, the region's plants and refineries released an additional 340 tons of air toxics, according to emissions reports voluntarily submitted to state officials. Half of that was released while most air monitors were down, according to a report released Monday by the Environmental Protection Agency's Office of Inspector General, or OIG.

The report has raised questions about whether officials fully understood air-quality risks after Harvey and communicated that information with residents of the most heavily affected communities.

"After landfall, the EPA and state and local agencies conducted mobile monitoring to assess air quality conditions following the storm – but it was too late to assess the total impact of emissions," Julie Narimatsu, a program analyst who worked on the audit said, said during a [podcast interview](#) by the independent watchdog office.

Figure A.5: Screenshot of Houston Chronicle detailing toxic pollution released from industrial sites following Hurricane Harvey. Photo submitted by Helene.

Source: Trevizo, P. (2019). Public not fully informed about air quality risks after Harvey, EPA's watchdog finds. URL: houstonchronicle.com/news/houston-texas/houston/article/Public-not-fully-informed-about-air-quality-risks-14909863.php.

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